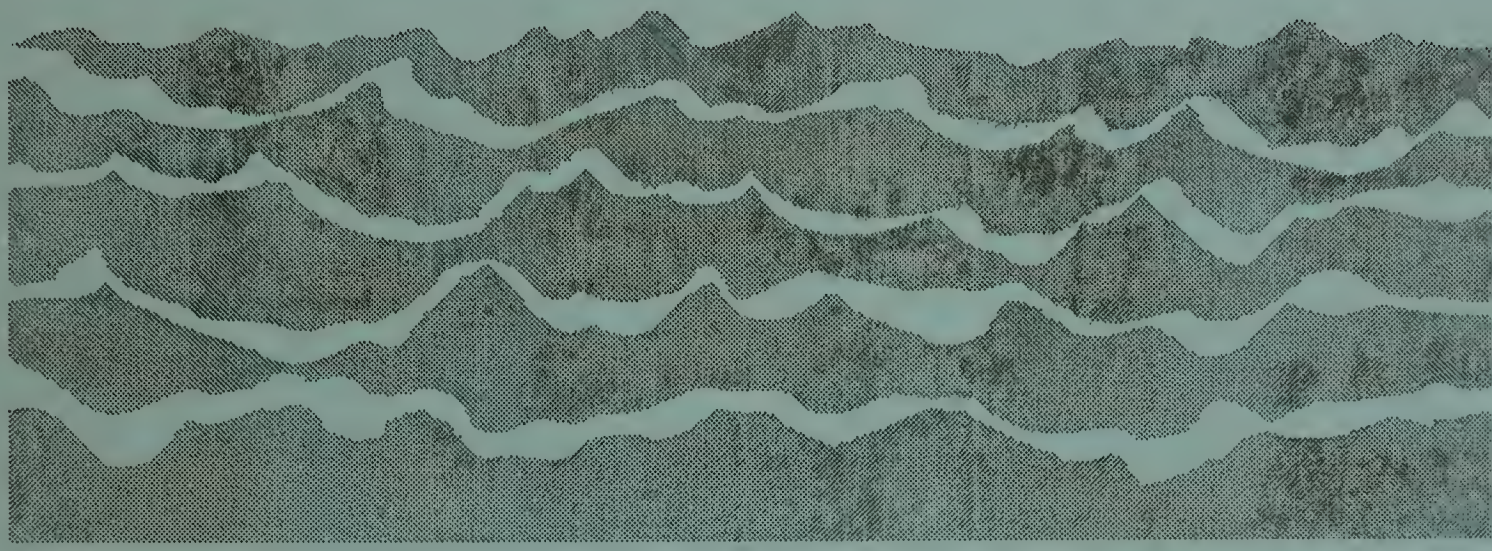
S
333.91
W3mswp
1989

The Montana State Water Plan



A Summary of Activities to Develop the State Water Plan in 1988

January 1989

MONTANA STATE LIBRARY
3 0864 0015 5623 5

THE MONTANA STATE WATER PLAN

A SUMMARY OF ACTIVITIES TO DEVELOP THE STATE WATER PLAN IN 1988

STATE DOCUMENTS COLLECTION

JUN 19 2001

MONTANA STATE LIBRARY
1515 E. 6th AVE.
HELENA, MONTANA 59620

TABLE OF CONTENTS

TAB	
A	Historical Overview and Summary of 1988 Activities
B	Chronology of State Water Plan Meetings/Activities
C	Primary Groups Consulted During the Development of the State Water Plan in 1988
D	State Water Plan Mailing List
E	State Water Plan Development: A Revised Approach (Report to the Fiftieth Session of the Montana Legislature)
F	Executive Order Creating the State Water Plan Advisory Council
G	The Montana State Water Plan: A Handbook on the Process
H	Montana Water Information System: State Water Plan Issue Paper No. 1
I	Instream Flow Protection: State Water Plan Issue Paper No. 2
J	Agricultural Water Use Efficiency: State Water Plan Issue Paper No. 3
K	Federal Hydropower Licensing and State Water Rights: State Water Plan Issue Paper No. 4
L	Preliminary Plan Sections
M	Public Comment on the Preliminary Plan Sections
N	The State Water Plan Advisory Council's Response to the Public Comments
O	Revised Plan Sections

P	Public Testimony on the Revised Plan Sections
Q	The State Water Plan Advisory Council's Response to the Public Testimony
R	The DNRC's Recommendation to the Board of Natural Resources and Conservation
S	Final Plan Sections
T	Report of the Water Policy Committee to the 51st Legislature of the State of Montana (Recommendations on the State Water Plan)
U	Summaries of Selected Public Information Meetings
V	Questions and Comments on Instream Flow Leasing

HISTORICAL OVERVIEW AND SUMMARY OF 1988 ACTIVITIES

In 1967, the Montana legislature passed the Water Resources Act which outlines several water management goals for the state (Section 85-1-101, MCA). The legislature also called for the development of a state water plan as the mechanism to accomplish the goals (Section 85-1-101(10), MCA). According to statutory guidelines, the state water plan should be comprehensive; coordinated; provide for multiple uses; set out a progressive program for the conservation, development, and utilization of the state's water; and propose the most effective means by which the state's water resources may be used for the benefit of the people with due consideration of alternative uses and combinations of uses (Section 85-1-203, MCA).

As provided by the statute, the Department of Natural Resources and Conservation (DNRC) is responsible for developing the state water plan. In the process of formulating the plan, the DNRC is to consult with and solicit the advice of the legislature's Water Policy Committee; hold public meetings prior to plan adoption; adopt the plan with the approval of the Board of Natural Resources and Conservation; publish the plan; and submit it to the Water Policy Committee and to each general session of the legislature (Section 85-1-203, MCA).

Prior to 1987, efforts to develop the state water plan focused on basin plans. While these plans resulted in volumes of technical information, they never considered the institutional and political feasibility of implementing their recommendations.

Consequently, the plans were quickly outdated, provided little guidance to resource managers in resolving water management problems, and ended up as "shelf art."

The traditional basin plans were also inappropriate vehicles for addressing the state's most critical water resource issues, such as interstate water allocation, reserved water rights, water use efficiency, drought mitigation, instream flow protection, groundwater management, and non-point source pollution. Faced with these types of issues, and given limited institutional resources, the DNRC realized that, to be successful, water planning must focus on specific, critical issues facing the state. It should examine the feasibility of existing laws and policies, administrative structures, funding commitments, and the capabilities to resolve these issues. Planning must also provide for new institutional mechanisms that operate across jurisdictional boundaries and incorporate all affected parties early in the process. Planning should be a continuous process that is adaptable to changing needs and desires. Finally, and perhaps most importantly, planning must lead to actions that will resolve our most pressing water resource problems.

In 1987, the DNRC embarked on a new approach to developing the state water plan. After reviewing the water planning processes of other western states, the DNRC decided to adopt an approach used by the Kansas Water Office (Section 82a-903, KSA). This approach allows individuals and groups affected by water management decisions to participate directly in the development

of policies, programs, and management decisions. It is designed to develop water management solutions through collaborative problem solving and consensus building. The new process is also consistent with a 1985 declaration by the legislative Select Committe on Water Marketing that "well reasoned policies must be developed with the participation of the legislature, other involved agencies, and the public."

The New Planning Process

As currently envisioned, the Montana state water plan will provide a comprehensive, coordinated, and integrative framework for managing the state's water resources. It is an issue-oriented plan designed to address the full range of water management issues facing the state. The planning process recognizes that a large number of federal, tribal, state, local, and even regional government entities have a role in the management of Montana's water, and that several parties are affected by water management decisions, including irrigators, municipalities, energy and industrial developers, and fish, wildlife, and outdoor enthusiasts. Therefore, the planning process provides an opportunity for all these parties to be involved in formulating and implementing the plan, thereby promoting coordination and cooperation in achieving Montana's water management objectives. Finally, the planning process is continuous and adaptable, allowing for changes in social, economic, and environmental objectives and needs.

The development of the plan consists of two phases. During the first phase, which is the focus of current activities, the planning process is designed to document, evaluate, and revise the legal and institutional framework for addressing statewide water management issues [1]. The objective of this phase is to develop the best possible legal and institutional tools for resolving selected water management issues.

Once the most critical statewide issues have been addressed, the planning process will focus on basin-specific water management plans [2]. These plans may focus on a single issue, such as water pollution, or consider multiple issues at the same time. Using the legal and institutional tools developed during the first phase of the process, the long-term objectives of the basin-specific plans are to document available water supplies and existing uses and rights; to project future water resource needs and priorities; and to integrate water, land, environmental, social, and economic goals, identify conflicts, and assess tradeoffs in order to make the best use of available water within the basin.

To facilitate formulation of the plan, the Governor Schwinden appointed a State Water Plan Advisory Council (SWPAC). The SWPAC consists of ten members that represent a broad range of interests in water resources, including the directors of the state departments of Natural Resources and Conservation, Fish, Wildlife and Parks, and Health and Environmental Sciences; a representative from the Governor's Office; four legislators (two

representatives and two senators with equal political representation; and two representatives of the public (a recognized water law expert and the manager of a large irrigation project). The SWPAC assists in identifying and selecting water management issues; developing objectives and strategies to resolve these issues; and implementing and evaluating the recommended actions. While the SWPAC is the principal decision making body in the state water planning process, the DNRC facilitates the process and serves as staff to the SWPAC.

This new planning process is based on the principles of collaboration and consensus building. It is particularly appropriate to the development of a comprehensive water plan for Montana because the issues typically expand beyond any one agency or jurisdiction; they involve multiple parties with wide disparities in interests, influence, and resources; there may be technical issues involving scientific uncertainty and the interpretation of controversial data; and the issues often affect the broader public interest.

Implementation During 1988

During 1988, implementation of the new planning process consisted of several steps [3]. The first step was to identify and select issues to address. Beginning in 1987, the Water Resources Division (WRD) of the DNRC met informally with water managers in other state and federal agencies, as well as with the

legislative Water Policy Committee, to identify critical water resource issues facing Montana. This effort resulted in a list of about twelve issues, which were then presented to the SWPAC. The SWPAC selected four of the issues to address in 1988, including water data management, federal hydropower licensing and state water rights administration, agricultural water use efficiency, and instream flow protection.

The next step was to begin drafting issue papers in January on each of the four issues selected. The issue papers provide background information; define goals and objectives; document and evaluate existing policies, programs, and practices associated with the issue; identify problems; examine several options for resolving the problems; and develop recommendations. The issue paper on water data management was researched and written by staff with the state's Natural Resource Information System, which is located in the State Library. The other three issue papers were researched and written by staff in the WRD.

As the issue papers were being drafted, the WRD identified several individuals to serve on Technical Advisory Committees (TACs) for each issue. Initially, these groups were to consist of "technical" experts who would review and revise the issue papers. However, when the SWPAC was advised that the original Instream Flow Technical Avisory Committee was composed exclusively of instream flow advocates, they recommended that the it should have a more balanced representation. Consequently, all the TACs were formed to represent all the parties affected by a

given issue, not just the technical experts and advocates. The SWPAC also specified that the role of the TACs should consist of identifying problems, examining options, and suggesting recommendations. Consistent with the philosophy of the new process, the goal of the TACs was to develop consensus recommendations for consideration by the SWPAC.

From March through June each TAC met once (with the exception of the instream flow TAC which met twice) to discuss the problems, options, and recommendations outlined in the issue papers. Most of the meetings began by exploring the interests of the broad-based group and the role of the TAC in the planning process. Eventually the TACs focused on the content of the issue papers, as well as additional concerns that emerged from the discussions. Consensus recommendations were reached on some of the issues. However, on many of the more controversial issues, the TACs could only reach agreement on the options and their pros and cons.

Two observations emerged from the TAC meetings. First, more time was needed to adequately address the issues and concerns of the affected parties. One eight-hour meeting simply did not provide the time required to build a consensus on the number and scope of issues being discussed. Second, many of the TAC participants felt that the DNRC had unfairly defined the agenda of the TACs by preparing the issue papers before any input by the affected parties. However, the WRD continually emphasized that the issue papers were only a starting point, designed to

stimulate thinking and discussion. Morevoer, many of the ideas in the issue papers were significantly revised in light of the TAC meetings.

After the TAC meetings, the WRD revised the issue papers and prepared executive summaries for the SWPAC. The SWPAC then held two all-day meetings to consider the findings and recommendations of the four TACs. As with the TACs, the SWPAC was initially unsure of its role and responsibility. However, under the leadership of the DNRC director, the chairman of the SWPAC, the SWPAC eventually focused on the issues, options, and recommendations presented by the TACs. While the SWPAC openly discussed the various proposals, they were not able to reach consensus on many of the issues. Consequently, to keep the process moving, the chairman was forced to call for a vote on several of the major issues.

Based on direction from the SWPAC, the WRD staff then prepared preliminary plan sections for each of the four issues. These plan sections are short, four to six page summaries of the issues. They provide background, present a policy statement, briefly examine the issues and options, present preliminary recommendations, outline actions for implementation (including legislative, administrative, and financial requirements), and include a time-table for implementation. The preliminary plan sections were then mailed to over 1,000 interested parties including the SWPAC, the TACs, the legislative Water Policy Committee, state and federal natural resource agencies,

irrigation districts, municipalities, environmental groups, and the media.

The next step in the process was to receive public comment on the preliminary plan sections. In late August and early September, the WRD held nine public meetings throughout the state. Almost 2,000 people attended the public meetings with many offering comment; nearly 200 letters commenting on the plan sections were also received. Nonetheless, many individuals expressed concern over the lack of public involvement in the process. They criticized the DNRC for not involving the public earlier in the process, prior to making final decisions. In reality, however, affected parties and the general public were on the "ground floor" in developing the plan. Not only were representatives from several interests involved in developing the preliminary plan sections, but no final decisions or proposals had been made prior to the public review and comment period. Other comments expressed concern over unbalanced TACs; the fact that certain issues, such as water storage, were not addressed; and the short time frame for developing the state water plan. Some commentators also perceived that the DNRC had too much control over the planning process and that, as a regulatory agency, the DNRC has an inherent conflict of interest that affects its credibility in the planning process. Finally, many comments praised the collaborative, consensus building nature of the planning process.

In early October, the SWPAC met to discuss the public

comments. While the SWPAC adopted the water information and hydropower licensing plan sections with minor changes to the preliminary plan sections, several of the preliminary recommendations in the instream flow protection and agricultural water use efficiency plan sections were significantly revised by the SWPAC in light of the public comments. The SWPAC also called for more public involvement throughout the process and extending the planning cycle to two years for complex, controversial issues. More importantly, the SWPAC reached consensus decisions rather than resorting to a vote.

Following the SWPAC's response to the public comments, the WRD mailed over 3,000 copies of the revised plan sections to all the individuals and groups on the original mailing list plus those that signed up at the public meetings. Three public hearings were then held across the state in early December to receive comment on the revised plan sections. Approximately 200 people attended the three public hearings. While much of the comment was relatively balanced, there was some concern that the instream flow plan section had been gutted. Other individuals continued to express concern over the instream flow plan section and its perceived threat to existing water rights.

Immediately after the public hearings, the SWPAC met to make final recommendations. Once again, the water information and hydropower licensing plan sections were adopted without change. In regard to the other two plan sections, however, the SWPAC included four additional recommendations: (1) to allow the

Department of Fish, Wildlife, and Parks to purchase and permanently transfer salvaged water; (2) to develop a program for the emergency leasing of water rights for instream flows (assuming it can be done without adversely affecting existing water rights); (3) to include a disclaimer in the instream flow leasing bill to the affect that, if legal opportunities exist to acquire water rights for instream flow purposes in addition to the leasing and reservation programs, the bill would not affect those opportunities; and (4) to allow water right holders and those with water discharge permits to object to new water use permits on the basis of adverse affects to water quality and public health.

The next step in the process is for the Board of Natural Resources and Conservation to approve the DNRC's adoption of the plans (Section 85-1-203, MCA). This step was not taken at the Board's meeting in January, 1989 because the DNRC felt that the new Governor should have an opportunity to review the proposals in the four plan sections. The DNRC will thus seek the Board's approval to adopt the first four sections of the state water plan at its February meeting.

If the Board approves the DNRC's adoption of the plan sections, they will be delivered to the legislative Water Policy Committee, the entire legislature, and to the several thousand groups and individuals who participated in developing the four plan sections. Implementation of the various actions will then begin and new issues will be selected for 1989. Based on the

time tables outlined in each plan section, the implementation of the recommended actions will be monitored and evaluated. If implementation is somehow delayed or ineffective, or if new problems or opportunities emerge with a given issue, the TACs and the SWPAC may go back and revise the plan sections accordingly.

Other Activities

In addition to the primary activities taken to develop the state water plan during 1988, several supporting activities were also taken. (A chronology of all the activities and meetings on the state water during 1988 follows this discussion under Tab B). Approximately 20 meetings were held with several interest groups to discuss the state water plan process and the various recommendations. Two meetings were also held with state and federal government representatives to discuss the state water plan and to identify critical water resource issues facing the state. Finally, the legislative Water Policy Committee and the Board of Natural Resources and Conservation were consulted on the development of the plan at most of their meetings in 1988.

NOTES

[1] Several water management issues may be addressed by the state water plan. Water quantity issues may include agricultural water use efficiency, hydropower licensing and state water rights, water information management, instream flow protection, water storage and development, and groundwater allocation. Water quality issues may include groundwater management and non-point source pollution. Other issues may include water quantity/quality management and river protection.

[2] The state of Montana can be divided into three major watersheds or river basins - the Columbia, Missouri, and Yellowstone. These major river basins, in turn, can be divided into 15 sub-basins. As currently envisioned, the state water plan will eventually develop an issue-oriented plan for each one of these basins through the same collaborative, consensus-building process as the one currently employed for statewide water management issues. The primary architects of the basins plans will be Citizen Advisory Committees, composed of citizens and affected parties located within a particular basin.

[3] The steps taken to implement the state water plan during 1988 include the following: (1) WRD identified issues; (2) SWPAC selected issues; (3) WRD drafted issue papers and established TACs; (4) TACs reviewed issue papers; (5) SWPAC

reviewed TACs recommendations; (6) public reviewed and commented on preliminary plan sections; (7) SWPAC responded to public comment; (8) public hearings on revised plan sections; (9) final SWPAC decisions; (10) ENRC approval of plan sections; and (11) implementation, monitoring, and evaluation of the plan.

CHRONOLOGY OF STATE WATER PLAN

MEETINGS/ACTIVITIES

DATE/LOCATION	ORGANIZATION	PURPOSE	ATTENDANCE
January 18, 1989 Helena	Teton River Water Users Association (Officers)	Discuss state water plan recommendations	6
January 13, 1989 Billings	Montana Land Improvement Contractors Association	Review the water plan process and preliminary recommendations	40
January 10, 1989 Pablo	Confederated Salish-Kootenai Tribes Tribal Council	Overview of the state water plan	15
January 7, 1989 Deer Lodge	Deerlodge Conservation District	State water plan panel	120
January 5, 1989 Helena	Board of Natural Resources and Conservation	Update on the state water plan	25
December 19, 1988 Dillon	Dillon Area Citizens Meeting	Review of state water plan process and recommendations	80
December 15, 1988 Helena	State Water Plan Advisory Council	Review public testimony and make final recommendations	35
December 14, 1988 Helena	Public Hearing on Revised Plan Sections	Review revised recommendations and take public testimony	100
December 14, 1988 Helena	Montana Water Resources Association Board Meeting	Review state water plan process and recommendations	10

December 13, 1988 Missoula	Public Hearing on Revised Plan Sections	Review revised recommendations and take public testimony	75
December 13, 1988 Helena	Governor's Agricultural Ad Hoc Group	Overview of the state water plan	?
December 12, 1988 Billings	Public Hearing on Revised Plan Sections	Review revised recommendations and take public testimony	50
December 4, 1988 Butte	Trout Unlimited State Council	Review state water plan recommendations	15
December 2, 1988 Helena	Water Policy Committee	Review instream flow leasing recommendations	20
December 1, 1988 Helena	Legislative Water Issues Forum	Review state water plan process and recommendations	100
November 19, 1988 Havre	Montana Land and Mineral Owners Association Annual Meeting	Review the water plan process and preliminary recommendations	50
November 15, 1988 Helena	Select Committee on Instream Flow Leasing	Discuss leasing and develop recommendations	20
November 14, 1988 Helena	Board of Natural Resources and Conservation	Update on the state water plan	20
November 11, 1988 Helena	Water Policy Committee	Review state water plan recommendations	25
November 4, 1988 Helena	Montana Association of Conservation Districts	Review state water plan recommendations	30

November 2, 1988 Bozeman	Montana Farm Bureau Federation -- President and executive staff	Review the water plan process and preliminary recommendations	5
November 1, 1988 Helena	Environmental Quality Council staff	Review state water plan legislation	6
October 25, 1988 Hamilton	Bitterrot Conservation District	Review the water plan process and preliminary recommendations	15
October 20, 1988 Butte	Pintlar Audubon Society	Review the water plan process and preliminary recommendations	15
October 12, 1988 Chester	Highline Sportsmen's Association	Review the water plan process and preliminary recommendations	25
October 7, 1988 Helena	Water Policy Committee	Review state water plan recommendations	25
October 6, 1988 Helena	State Water Plan Advisory Council	Review public comments and make draft final recommendations	25
October 6, 1988 Helena	Montana Stockgrowers Association -- Water Resources Subcommittee	Review the water plan process and preliminary recommendations	6
October 5, 1988 Livingston	Montana Association of Conservation Districts Area VI Annual meeting	Overview of the state water plan	60
October 4, 1988 Columbus	Montana Association of Conservation Districts Area IV annual meeting	Overview of the state water plan	60

September 28, 1988 Chinook	Montana Association of Conservation Districts Area III annual meeting	Overview of the state water plan	100
September 27, 1988 Jordan	Montana Association of Conservation Districts Area I Annual meeting	Overview of the state water plan	75
September 26, 1988 Broadus	Montana Association of Conservation Districts Area II Annual Meeting	Overview of the state water plan	75
September 21, 1988 Idaho	Western State Engineers	Overview of the state water plan	50
September 19, 1988 Helena	Board of Natural Resources and Conservation	Update on the state water plan	20
September 7, 1988 Butte	Public Meeting on Preliminary Plan Sections	Review of plan process and preliminary recommendations	500
September 1, 1988 Great Falls	Public Meeting on Preliminary Plan Sections	Review of plan process and preliminary recommendations	250
August 31, 1988 Glasgow	Public Meeting on Preliminary Plan Sections	Review of plan process and preliminary recommendations	100
August 30, 1988 Miles City	Public Meeting on Preliminary Plan Sections	Review of plan process and preliminary recommendations	100
August 29, 1988 Billings	Public Meeting on Preliminary Plan Sections	Review of plan process and preliminary recommendations	200

August 29, 1988 Helena	Water Policy Committee	Review state water plan recommendations	25
August 25, 1988 Bozeman	Public Meeting on Preliminary Plan Sections	Review of plan process and preliminary recommendations	350
August 24, 1988 Helena	Public Meeting on Preliminary Plan Sections	Review of plan process and preliminary recommendations	120
August 23, 1988 Missoula	Public Meeting on Preliminary Plan Sections	Review of plan process and preliminary recommendations	200
August 22, 1988 Kalispell	Public Meeting on Preliminary Plan Sections	Review of plan process and preliminary recommendations	40
July 27, 1988 Helena	State Water Plan Advisory Council	Review issue papers and provide guidance on plan sections	25
June 1, 1988 Helena	State Water Plan Advisory Council	Review issue papers	25
May 27, 1988 Helena	Water Policy Committee	Review state water plan progress	25
May 19, 1988 Helena	Hydropower Licensing Technical Advisory Committee	Discuss issues and develop options and recommendations	20
May 16, 1988 Helena	Instream Flow Technical Advisory Committee	Discuss issues and develop options and recommendations	25

May 4, 1988 Helena	Agricultural Water Use Efficiency Technical Advisory Council	Discuss issues and develop options and recommendations	10
April 22, 1988 Helena	State Water Plan Advisory Council	Update on state water plan	20
April 11, 1988 Helena	Water Information System Techncial Advisory Committee	Discuss issues and develop options and recommendations	20
April 5, 1988 Helena	State-Federal Coordinating Meeting	Discuss state water plan process and identify issues	25
March 28, 1988 Helena	Instream Flow Technical Advisory Council	Discuss issues and develop options and recommendations	25
March 20, 1988 Helena	Board of Natural Resources and Conservation	Update on state water plan progress	?
March 2, 1988 Helena	Federal Coordinating Meeting	Discuss state water plan process	25
February 26, 1988 Helena	Water Policy Committee	Review state water plan progress	25
September 3, 1987 Helena	State Water Plan Advisory Council	Update on state water plan progress	?
January 12, 1987 Helena	State Water Plan Advisory Council	Update on state water plan progress	?
January ?, 1986 Helena	Board of Natural Resources and Conservation	Update on state water plan progress	?

PRIMARY GROUPS CONSULTED DURING THE DEVELOPMENT OF THE STATE WATER PLAN IN 1988

State Water Plan Advisory Council

Larry Fasbender, Chairman
Department of Natural
Resources and Conservation

John Drynan
Deparment of Health and
Environmental Sciences

Jim Flynn
Department of Fish,
Wildlife and Parks

Jack Galt
Senator (R)

Dennis Iverson
Representative (R)

Howard Johnson
Office of the Governor

Jerry Nypen
Greenfield Irrigation District

Bob Ream
Representative (D)

Al Stone
University of Montana

Bill Yellowtail
Senator (D)

Water Policy Committee

Jack Galt, Chairman
Senator (R)

Dorothy Bradley, Vice-Chairman
Representative (D)

Esther Bengtson
Senator (D)

Dennis Iverson
Representative (R)

Bob Marks
Representative (R)

Gary Spaeth
Representative (D)

Larry Stimatz
Senator (D)

Pete Story
Senator (R)

Board of Natural Resources

William A. Shields, Chairman

G. Steven Brown, Legal Counsel

Carrol Graham

Giles W. Gregoire

Charles L. Hash

Dan L. Reider

Joan Toole

Jerry Wiedebush

Water Information System Technical Advisory Committee

Mike Cannon
U.S. Geological Survey

Rosa Hygard
U.S. Forest Service

Kathie Jewell
Bureau of Land Management

Carl Key
National Park Service

Gerhard Knudsen
Department of Natural
Resources & Conservation

Bob McFarland
Department of Fish, Wildlife & Parks

Chuck Parrett
U.S. Geological Survey

Tom Patton
Bureau of Mines and Geology

Howard Peavy
Montana State University

Tom Reid
Department of Health
& Environmental Sciences

Lee Shanklin
U.S Environmental Protection
Agency

Instream Flow Protection Technical Advisory Committee

Loren Bahls
Department of Health &
Environmental Sciences

Jim Beaver
Bureau of Land Management

Peter Bierback
Bureau of Land Management

Anne Black
Northern Plains Resource Council

Stan Bradshaw
Trout Unlimited

Josephine Brunner
Montana Water Development Association

Rick Devore
U.S. Bureau of Reclamation

Gary Gregory
Glacier National Park

Lorents Grosfield
Montana Association of
Conservation Districts

Gary Langley
Montana Mining Association

Clayton Matt
Flathead Indian Reservation

Jim "Perry" Moore
Moore, O'Connell, Refling &
Moon

Rich Moy
Department of Natural Resources
& Conservation

Jerry Nypen
Greenfield Irrigation District

Marcia Rundle
Department of Natural
Resources and Conservation

Ron Russell
U.S. Forest Service

Debbie Schmidt
Environmental Quality Council

Gary Spaeth

Liter Spence
Department of Fish Wildlife & Parks

John Thorsen
Doney & Thorsen

Dr. Bob White
Department of Fish Wildlife, & Parks

Jim Wysocki
City Manager, Bozeman

Agricultural Water Use Efficiency Technical Advisory Committee

Loren Bahls
Department of Health & Environmental Sciences

Jim Bauder
Cooperative Extension Service

Jo Brunner
Montana Water Development Association

Dick Bruskern
Department of Civil & Ag Engineering
Montana State Univ.

John Dalton
U.S. Soil Conservation Service

Bob Fagerburg
U.S. Burau of Reclamation

Lorents Grosfield
Montana Association of Conservation Districts

Ron Guse
Department of Natural Resources & Conservation

Vern House
Cooperative Extension Service

Wally Jolly
Soil Conservation Service

Keith Kelly
Department of Agriculture

Faye McKnight
Department of Natural Resources & Conservation

Jerry Nypen
Greenfields Irrigation District

George Ochenski
Drought Task Force

Chuck Parrott
U.S. Geological Survey

Vicki Rieffenberger
Department of Natural Resources & Conservation

Steve Sando
Department of Natural Resources & Conservation

Steve Schmitz
Department of Natural Resources & Conservation

Joan Schumacher
Department of Natural Resources & Conservation

Steve Slagle
U.S. Geological Survey

Liter Spence
Department of Fish, Wildlife & Parks

Jack Sutphin
U.S. Bureau of Reclamation

Bob Thompson
Environmental Quality Council

John Thorson
Attorney at Law

John Tubbs
Department of Natural Resources & Conservation

Hydropower Licensing and State Water Rights Technical Advisory Committee

Gordon Aycock
Bureau of Reclamation

Morris Brusett
Northwest Power Planning Council

Dave Darby
Department of Natural Resources & Conservation

James D. Davies
Western Area Power Administration

Alan Davis
Department of Natural Resources & Conservation

Jim Follensbee
Central Montana Electric Power Coop, Inc.

Pete Gross
Potosi Power

Tim Hall
Department of Natural Resources & Conservation

Randy Moy
Department of Natural Resources & Conservation

Larry Peterman
Department of Fish, Wildlife and parks

Ron Schofield
Helena Valley Irrigation District

Bob Scott
Department of Natural Resources and Conservation

Roger Woodworth
Washington Water Power Co.

Mike Zimmerman
Montana Power Company

Select Committee on Instream Flow Leasing

Byron Bayers
County Commissioner, Madison County

Jim Belsey
Trout Unlimited

Stan Bradshaw
Trout Unlimited

Jo Brunner
Montana Water Resources Association

Jay Chamberlain
Bitterroot Irrigation District

Gary Fritz
Department of Natural Resources & Conservation

Pat Graham
Department of Fish, Wildlife & Parks

Lorents Grosfield
Montana Association of Conservation Districts

Roy Jones
Department of Natural Resources & Conservation (Water Rights Bureau)

Jess Kilgore
Montana Stockgrowers;
Gallatin Agricultural Proctection Association

Gerhard Knudsen
Department of Natural Resources & Conservation

Jan Konigsberg
Montana Land Reliance

Ed Lord
Montana Farm Bureau Federation

Bob Marks
Speaker, Montana House of Representatives

Curt Martin
Department of Natural Resources & Conservation

Matt McKinney
Department of Natural Resources & Conservation

Mike McLane
Department of Natural Resources & Conservation (Water Rights Bureau)

Alan Mikkelsen
Flathead Joint Board of Control
Marvin Miller
Bureau of Mines and Geology

Jim Moore
Self

Rich Moy
Department of Natural Resources & Conservation

George Ochenski
Self

Larry Peterman
Department of Fish, Wildlife & Parks

Bob Thompson
Montana Environmental Quality Council

STATE WATER PLAN
MAILING LIST

(January 16, 1989)

	Category	# of Entries
1.	Interested Individuals	1,123
2.	Public & Private Irrigation Projects	267
3.	Public Domestic Water Suppliers	193
4.	Sportsmens'/Environmental Groups	182
5.	State Government Agencies, Boards, etc.	168
6.	Legislators	150
7.	Local Planning Agencies	135
8.	Conservation Districts	131
9.	Libraries	131
10.	Commercial Business & Trade Groups (Agriculture, Mining, Energy, Tourism, etc.)	117
11.	Media (Newspapers, TV, & Radio)	115
12.	Federal Agencies	84
13.	County Commissions & Local Gov't Org.	59
14.	County Extension Agents	48
15.	Other State and Regional Gov't Org.	24
16.	Tribal Government	21
	TOTAL	2,948

STATE WATER PLAN DEVELOPMENT:
a revised approach

a report to the fiftieth session
of the montana legislature

JANUARY , 1987

Acknowledgments are due Larry Fasbender, Director of the Department of Natural Resources and Conservation, and Gary Fritz, Administrator of the Water Resources Division, who directed the production of this report. It was written by Curt Martin, with the guidance and critical review of Gerhard Knudsen, Rich Moy, Susan Higgins, David Darby, Chuck Dalby, and John Tubbs. Susan Higgins deserves special recognition for the early research used in developing this report. Peggy Todd edited the text, and Don Howard prepared the cover and graphics. Word processing was done by Lindy Proue, Debbie Waples, and Marjorie Peterson.

INTRODUCTION

Publication of a comprehensive water plan has been a goal of the state of Montana for two decades. Achievement of this goal has been hindered by changing concepts of what the plan is intended to accomplish. While these concepts changed, the need for the plan continued to grow. Today, the issues facing state water managers are more complex and have broader implications. In view of these issues, the lessons of the past, and present funding trends, four practical objectives for the state water plan become apparent.

1. Document state water policy. The state water plan must clarify state water policies. It must be a straightforward and systematic reference on state water management principles. Through the planning process, all water-related management strategies and activities must be documented, analyzed, endorsed by the public, and to the extent possible, merged to describe a clear and comprehensive state water policy.

2. Promote more coordinated water management. There may be opportunities for greater interagency water management coordination. The state water plan should improve coordination among government agencies and eliminate duplication of efforts where management functions are logically complementary.

3. Designate water management priorities. There are limits to the funding available to resolve a large array of important water issues. Identifying priority water issues and focusing resources on their resolution is preferable to attempting to address all water issues and resolving fewer of them.

4. Lead to water management action. Planning is intended to assist in making decisions. Thus, the success of state water planning must be measured by its effect on water management actions. Planners and decision makers must work together in order to improve both management and planning success. We do not have the luxury of treating planning as an academic exercise; it must be directed toward producing results.

This report presents a new approach for developing a state water plan for Montana. It is a summary of a longer document, available upon request, that details the historical background, theoretical framework, and specific steps of the revised planning process. Together, these reports represent a desire to do more than simply fulfill a statutory requirement for a state water plan. The goal is to enhance the productivity of state water management and improve responsiveness to current and future water problems.

BACKGROUND

Statutory Framework

In passing the 1967 Water Resources Act, the Montana Legislature set forth several water management goals for the state and concluded that these goals are to be accomplished through formulation of a state water plan. Also in that statute (Section 85-1-203, MCA), the legislature required that the plan:

- be comprehensive,
- be coordinated,
- provide for multiple uses,
- set out a progressive program for the conservation, development, and utilization of the state's water, and
- propose the most effective means by which the water resources may be used for the benefit of the people, with due consideration of alternative uses and combinations of uses.

As for the planning process, the legislature prescribed that:

- the Department of Natural Resources and Conservation (the department) is to formulate the plan,
- the plan may be developed in sections corresponding to hydrologic divisions of the state,
- the department is to consult with and solicit the advice of the legislature's Water Policy Committee,
- public hearings are to be held prior to plan adoption,
- the department is to adopt the plan, with the approval of the Board of Natural Resources and Conservation,
- once the plan is adopted, the department is to publish it, and
- the adopted plan is to be submitted to the Water Policy Committee and to each general session of the legislature.

History of Water Planning in Montana

The efforts of the department to meet the statutory water planning mandate and the numerous documents that resulted are described in the 1985 report to the 49th Legislature, Montana's Water Planning Program. The history of state water planning has had a major impact on our perspective of how--and how not--to plan and thus provides context to this report. There are three distinct periods to this history: the project planning period prior to 1965, the basin planning period from 1965 to 1981, and the present planning period beginning in 1981.

1. Project Planning: Prior to 1965

For a long time, water project development was the sole focus of water planning. People learned the hard way that Montana's harsh climate made dryland farming a precarious business and that an assured supply of supplemental feed for livestock during the winter was a necessity. Irrigation projects were deemed essential because they would provide needed stability to Montana's agricultural economy. Montanans' pleas for irrigation projects were heard in Helena and Washington, D.C. In response, about 180 projects were constructed during and after the Great Depression in the 33-year tenure of the State Water Conservation Board. About

half of the funding for these projects came from the Public Works Administration and other federal sources. Some of the original projects were abandoned; some proved too costly to operate and others were poorly designed or constructed. For example, the Big Dry Project included a dam that was hurriedly constructed, washed out, reconstructed, and washed out again. Such problems usually stemmed from the federal government's over eagerness to put people to work--political decisions to construct were made before the planning had been completed. Forty-three of these projects are still administered by the state, and many others have been transferred to private water users. Projects such as Painted Rocks, Tongue River, and Deadman's Basin continue to provide economic benefits to their users and to stabilize agricultural production across the state.

2. Basin Planning: 1965 to 1981

In 1965, Congress passed the Water Resources Planning Act, which defined the nation's concept of water planning for sixteen years. This act provided grants to states for water planning activities. Montana's water planning program received between $70,000 and $200,000 per year from this source. The act also created river basin commissions to oversee planning for development and protection of the nation's major river basins. Basin planning emphasized close coordination among interested local, state, and federal agencies. It was a scientific, technically-oriented approach to water planning that provided much-needed information. On the other hand, basin planning was expensive. The basin plan for the Yellowstone River, for example, cost $2.4 million. The major criticism of the basin plans has been their inability to generate action.

3. Problem-Specific Planning: 1981 to present

The basin planning period ended in 1981 when President Reagan abolished the river basin commissions and ended grants for state water planning. Montana's water planning capabilities were substantially reduced. A lack of personnel and funding forced the state into a reactive posture. Planning was focused on the most pressing water problems and achieving their solutions.

Federal withdrawal from the leadership role in water planning and the state's assumption of this responsibility prompted a fundamental reevaluation of state water planning. The reevaluation was bolstered by an inference from the recent U.S. Supreme Court ruling in Colorado v. New Mexico that a state water plan could benefit a state's position in an equitable apportionment suit. As a result of this self-assessment, it became apparent that the current state water management effort is not as systematic as it might be; there is no framework to guarantee that the issues addressed are the most pressing and that the recommended solutions are comprehensive, the most efficient, and acceptable to the public. With the support and guidance of the legislature's Water Policy Committee, the reevaluation has culminated in this report.

Lessons Learned

From the project planning period, we learned that water management involves more than just developing and operating water projects. While water development provides the answer to some problems, water projects cannot resolve other issues we face today, such as those concerning interstate water allocation, non-point source pollution, water use efficiency, or the quantification of federally reserved water rights. Such issues require that the planning process examine our administrative programs, laws and policies, funding commitments, and technological capabilities, and develop improved strategies for water management.

Basin planning demonstrated the futility of planning simply for its own sake. Although basin planning resulted in valuable technical information, it was directed toward the production of a final document and not toward achieving an on-

going process for solving problems. That kind of planning should not continue even if the substantial funds for it were still available. In terms of generating management actions, the benefits are insufficient.

Perhaps the most successful water planning exercise in recent years was the 1981 review of Montana's water policy performed with the assistance of a Water Policy Review Advisory Council. This review led to creation of the state's dam safety and water development programs, development of a state water protection strategy for the Missouri Basin, passage of legislation to allow the closure of over-appropriated basins, and a proposal for a water data management system. This success has served as a model for the state water plan.

From these lessons, we have identified some characteristics that are important to water planning success. For instance, the water policy review process could have been even more successful had it not been temporary. Planning must be continuous; it should not conclude with the publication of a plan. Plans must be adaptable to change because problems change. An important characteristic of the water policy review process was a strong commitment to public involvement. The advisory council, as a representative of the public, was not just window dressing for the process; it directed the process towards its outcome. A final desired characteristic of the planning process is thrift. Ultimately, the planning process should resolve the most important and greatest number of problems for the available planning dollar.

Planning Process

Montana's new water planning process fulfills the department's water planning responsibilities with minimum disruption to the existing administrative framework. The process depends upon the cooperative participation of existing agencies. The only new governmental entities created are advisory groups.

A State Water Plan Advisory Council has been organized to supervise the development of the state water plan. This council is composed of ten members: the directors of the Department of Natural Resources and Conservation, the Department of Health and Environmental Sciences, and the Department of Fish, Wildlife and Parks; a representative of the Governor's Office; four legislators; and two representatives of the public who are respected in the water management field. The advisory council sets annual priorities among components of the plan, assigns responsibility among state agencies for drafting those components, supervises the submission of drafts to willing outside experts (including federal, state, and local government officials, academics, and interested private sector professionals), and supervises the technical revisions of drafts.

Local, basin-specific Citizens' Advisory Committees are to be organized to perform a similar function for subbasin management issue components of the plan. These committees are appointed by the governor and provide local citizen involvement in the development and revision of plan components. The remaining formal participants are the Board of Natural Resources and Conservation, which approves the plan prior to department adoption, and the legislature, which receives the plan after adoption and, it is hoped, implements plan recommendations for legislative action.

Figure 1 illustrates the seven stages of the planning process: initiation and drafting, technical review, public review, final revisions, adoption, implementation, and reevaluation. The first five stages comprise an annual formulation cycle. During the initiation and drafting stage, the State Water Plan Advisory Council sets annual plan priorities and assigns responsibility for drafting plan components among state agencies. Technical review includes the submission of drafts for review by outside experts and the recommendation of revisions by the State Water Plan Advisory Council and local advisory committees. Public review entails statewide meetings on plan components and consultations with the Water Policy Committee. Then, the feedback from the technical and public reviews is used by the department to prepare final drafts of plan components for adoption. Adoption includes a final public hearing and Board of Natural Resources and Conservation approval. Implementation of the plan is not mandatory, and may require action by state, local, federal or even private entities. In reality, the strength of the political support for the plan is the determining factor for its implementation. The planning process attempts to achieve consensus in formulating the plan and to promote the development of a state water plan constituency.

A final factor that can stimulate plan implementation is reevaluation. Reevalua-

FIGURE 1

REVISED WATER PLANNING PROCESS

I. INITIATION AND DRAFTING

A. Annual priorities for plan component formulation determined by the State Water Plan Advisory Council with input of public survey

B. Begin drafting components

II. TECHNICAL REVIEW

A. Expert comment solicited

B. State Water Plan Advisory Council revisions incorporated

III. PUBLIC REVIEW

A. Statewide public meetings held and public comment received

B. Basin Citizens' Advisory Committees facilitate local review

C. Request Water Policy Committee advice on public comment

IV. FINAL REVISIONS

A. Finalize drafts

V. ADOPTION

A. Public hearing

B. Board approval

C. Adoption through rulemaking

VI. IMPLEMENTATION

A. Plan sections submitted to legislature and Water Policy Committee

VII. REEVALUATION

A. Mandatory after six years, can be sooner if determined necessary by the State Water Plan Advisory Council

tion insures that the plan remains current and also serves as a reminder of any unfulfilled responsibilities for plan implementation.

The success of the planning process may depend upon the effectiveness of public involvement. Effective public involvement assists in identifying and setting priorities among issues to be considered, provides a view of public sentiment, and results in broader support for implementation of planning recommendations. Public involvement techniques to be employed include public meetings and hearings, a newsletter, surveys, and the advisory groups. Fundamentally, the public involvement effort must be sincere, responsive, and simple in the use of written and verbal language.

Plan Documentation

The new state water plan is to be a collection of short, individual management issue, pamphlet-style components, organized in a logical sequence and bound together in a three-ring binder. This format was developed for the Kansas Water Plan and is being borrowed by Montana. The format is flexible and allows the plan to be updated regularly. Components can be added, deleted, or revised as circumstances change without compromising the integrity of the rest of the document. This format allows the plan to be developed incrementally with the number of components formulated each year depending on the availability of funds. The current goal is to complete an initial formulation of all plan components in six years.

An outline of potential components of Montana's state water plan is attached as Appendix A. It is organized into two major parts, which are divided further into sections and subsections. The first part is devoted to statewide water management issues, the second to basin-specific management issues. Statewide management issues are divided into water supply management, water quality management, and aquatic and recreational resources management sections. The basin-specific management issues are divided into Columbia, Missouri, and Yellowstone basin sections. Sections are further divided into subsections corresponding to more specific statewide issues or watersheds.

A pamphlet-style component of the state water plan is to be brief and follow a uniform outline which requires the plan to precisely identify needed actions and assign responsibilities for plan implementation. The outline is presented in Figure 2 with an example of the kinds of items found under each heading of the standard contents. The example is taken from a component of the Kansas Water Plan.

Program Cost

The department estimates that completing the state water plan during the desired six year time span will cost $87,000 per year. This would result in the major water issues confronting Montana being addressed, with the most pressing water issues considered during the first three years of plan development (fiscal years 1988-90).

This creates a dilemma. The department is not adequately funded to develop this kind of state water plan. But increasing funds for the state water plan would mean expanding a program at a time when state government is attempting to cut costs and trim budgets to match declining revenues.

The state water plan remains a high priority of the department, consistent with direction from the legislature and, more recently, from the Water Policy Committee. However, the department cannot recommend additional funding at the expense of programs which comply with more immediate legislative mandates or involve public health and safety, such as the water development program, new water rights appropriations, or dam safety.

Are there ways to lower costs or obtain additional funding for the state water plan? Some alternatives include:

1. Lower Annual Costs.

   The program could be implemented over a longer time period. This would mean that four to six additional years would be needed to develop the entire plan with some high priority issues not being addressed for several years.

   Public involvement could be less comprehensive. As a result, a few important issues may not be identified or analyzed thoroughly. This could also result in incorrect recommendations and a lack of consensus and less public support for components of the plan.

   The development of plan components could be made an additional responsibility of other, presently funded water programs. Although the savings to the water planning program would thus be partly shifted to these programs, the plan would not be as well coordinated or as comprehensive.

2. Find Other Sources of Funds.

   Applications could be made for federal and private foundation grants. However, the development of a much-needed water plan for Montana would not be assured since there is no guarantee that other funds would be forthcoming.

   Other programs, both within or outside the department, could be foregone and their funding reallocated to the state water plan.

The department plans to submit more detailed cost estimates for the planning process to the State Water Plan Advisory Council. In turn, this council will make the appropriate funding recommendation to the legislature from among these, or possibly other, alternatives.

FIGURE 2

SAMPLE PLAN SECTION FROM KANSAS WATER PLAN

ISSUE: NON-POINT SOURCE POLLUTION

Standard Outline	Summarized Content
I. Management Framework	
A. Policy	Kansas Water Quality Standards, Federal Clean Act Water
B. Administrative Structure	Kansas Department of Health and Environmental Sciences, County Conservation Districts, State Conservation Commission
II. Issue Identification	Non-point pollution contributes to the aging of lakes, water treatment costs, adverse effects on human, fish, and animal health. Reducing this form of water pollution will require changes in land use management practices
III. Analysis of Options	1) statewide program for non-point source control, 2) statewide strategy with local implementation
IV. Recommendations	Option 2 recommended
V. Plan Implementation	
A. Legislative Action	None required in this example
B. Administrative Action	1) Kansas Department of Health and Environmental Scieces will develop the strategy and basin priorities 2) County conservation districts will develop individual implementation plans
C. Financial Requirements	One new staff person for the state, federal funds for local implementation
D. Time Table	Basins ranked according to priority for completion of implementation plans
E. Progress	Will be described at the time of reevaluation
VI. References	Previously published reports

This report documents a new direction for development of the state water plan, needed because of growing concerns over the magnitude of current and future problems and a fear that past and present planning is inadequate for achieving their timely solution. The revised planning process is designed to bring more order and stability to the system in which planners, decision makers, and the public work together for solving these problems.

The new planning process cannot solve all water problems, but it can make a big difference. With the increased interaction of the public, policy makers and water management agencies at all levels of government, and the goal of producing results as a key incentive--water problems can be overcome. The planning process creates a flexible framework not only for finding solutions, but for putting them in place.

POTENTIAL COMPONENTS OF THE STATE WATER PLAN

Preface. The Montana State Water Planning Process and Purpose

Part I. Statewide Management Issues

Section A. Water Supply Management

1. Water Allocation
   - a. General Adjudication Process
   - b. Permitting Process
   - c. Water Reservations
   - d. Water Leasing
2. Federal Reserved Water Rights
   - a. Indian
   - b. Non-Indian
3. Conservation
   - a. Drought Management
   - b. Agricultural Water Use Efficiency
   - c. Municipal and Industrial Water Use Efficiency
4. Water Development
   - a. Project Planning and Selection
   - b. Cost-sharing
5. Hydropower
   - a. Northwest Power Planning
   - b. Federal Licensing Process
   - c. Small Scale Hydro
   - d. Pick-Sloan Power Allocation
6. Dam Safety
   - a. Permitting Process
   - b. Emergency Responsibilities
7. Flood Protection
   - a. Floodplain Regulation and National Flood Insurance Program Assistance
   - b. Streambank Stabilization
8. Interstate/International Water Problems
   - a. Missouri River Apportionment
   - b. Canadian Issues
   - c. Yellowstone Compact Issues
   - d. Columbia River Basin Issues
9. Instream Flows
   - a. Public Trust Doctrine Application
   - b. For Water Quality Dilution and Aquatic Life
10. Ground Water Management
    - a. Controlled Ground Water Areas
    - b. Water Well Drilling
    - c. Oil and Gas Development
11. Weather Modification
    - a. Permitting Process
    - b. Technology Development
12. Water Resources Information
    - a. Data Management System
    - b. Water Research

Section B. Water Quality Management

1. Water Quality Standard-setting Process
2. Point-source Pollution Permitting Process

3. Nonpoint-source Pollution Control

   a. Agricultural
   b. Forestry
   c. Mining

4. Non-degradation

5. Public Water Supply Protection

6. Ground Water Quality Protection

7. Special Problems

   a. Salinity
   b. Suspended and Depositional Sediment
   c. Stream Dewatering
   d. Toxic Waste Disposal
   e. Lake Eutrophication
   f. Acid Mine Drainage

Section C. Aquatic and Recreational Management

1. Riparian Zone Management

   a. Dredge and Fill Regulation
   b. Recreational Access
   c. Reservoir Operation

2. Endangered Species

3. Wetlands Preservation

Part II. Basin Management Issues*

Section A. Columbia River Basin

1. Kootenai (1)
2. Upper Flathead (2)
3. Upper Clark Fork (3)
4. Lower Clark Fork (4)

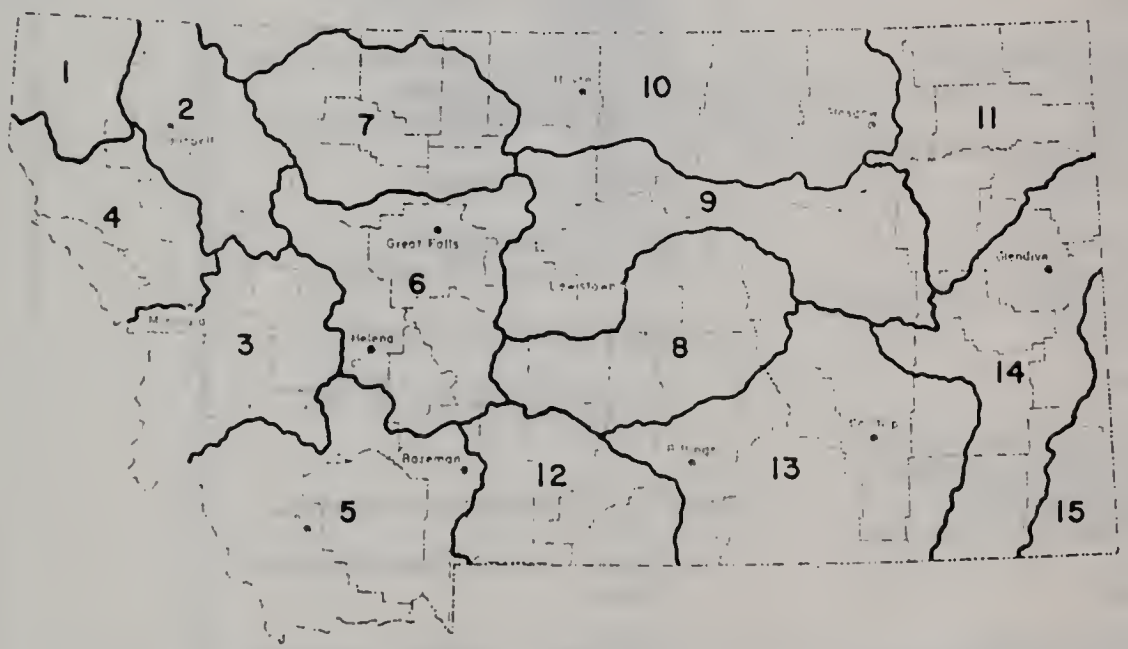
Section B. Missouri River Basin

1. Jefferson-Madison-Gallatin (5)
2. Upper Missouri (6)
3. Marias-Teton (7)
4. Musselshell (8)
5. Middle Missouri (9)
6. Milk-St. Mary (10)
7. Lower Missouri (11)

Section C. Yellowstone River Basin

1. Upper Yellowstone (12)
2. Middle Yellowstone (13)
3. Lower Yellowstone (14)
4. Little Missouri (15)

* Numbers in parenthesis correspond to regions on the map below.



RECEIVED
MAY 25 1988
MONTANA DEPT. OF NATURAL
RESOURCES & CONSERVATION

STATE OF MONTANA
OFFICE OF THE GOVERNOR
EXECUTIVE ORDER NO. 20-86

EXECUTIVE ORDER CREATING THE STATE WATER PLAN ADVISORY COUNCIL

WHEREAS, the Department of Natural Resources and Conservation is charged in 85-1-203(2), MCA, with the responsibility to formulate a state water plan, and

WHEREAS, formulation and amendment of the plan should reflect public concerns and input, and

WHEREAS, a group of legislators, agency representatives and private citizens can assist the Department in developing the state water plan.

NOW, THEREFORE, I, TED SCHWINDEN, Governor of the State of Montana, by virtue of the authority vested in me pursuant to the Constitution and laws of the State of Montana, specifically 2-15-122, MCA, do hereby create the State Water Plan Advisory Council.

I. PURPOSE.

The Council shall:

a. provide advice on state water planning priorities.

b. provide advice on coordination of state water planning activities.

c. provide advice on technical and public review of the state water plan.

II. COMPOSITION.

The Council shall consist of ten members. The Chairman of the Council shall be Larry Fasbender. The names and addresses of the members are:

Dennis Iverson
Whitlash, MT 59545

William P. Yellowtail, Jr.
P.O. Box 308
Wyola, MT 59089

Jerry Nypen
Route 1
Fairfield, MT 59436

Dorothy M. Bradley
919 West Lamme
Bozeman, MT 59715

Jack E. Galt
Martinsdale, MT 59053

Albert W. Stone
200 Eddy Apt. SE
Missoula, MT 59801

COMPOSITION (Continued)

James W. Flynn
1491 Beaverhead
Helena, MT 59601

John J. Drynan, M.D.
4127 Lombardy Drive
Helena, MT 59601

Howard Johnson
Office of the Governor
Helena, MT 59620

Larry Fasbender
2403 Canyon Court
Helena, MT 59601

III. COMPENSATION.

Council members' expenses eligible for compensation under 2-15-122(5) shall be compensated by the Department of Natural Resources and Conservation at the rate of $25 for each day actually and necessarily engaged in the performance of Council duties. All members shall be reimbursed for travel expenses pursuant to 2-15-122(5).

IV. DURATION.

This Council shall exist for a period of two years from the effective date of this Order unless extended by Executive Order. This Order is effective immediately.

GIVEN under my hand and the GREAT SEAL of the State of Montana, this 31st day of December, in the year of our LORD, One Thousand Nine Hundred and Eighty-Six.

TED SCHWINDEN, Governor

ATTEST:

JIM WALTERMIRE, Secretary of State

3/2-16

State of Montana
Office of the Governor
Helena, Montana 59620
406-444-3111

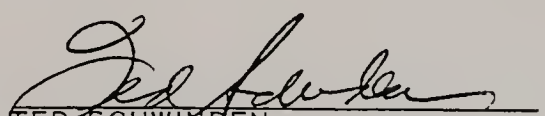
TED SCHWINDEN
GOVERNOR

May 25, 1988

Verner L. Bertelsen
Secretary of State
Capitol Station
Helena, MT 59620

Dear Secretary of State Bertelsen:

I hereby appoint Rep. Bob Ream, 5950 Wildcat Road, Missoula, MT 59802, to fill the unexpired term of Rep. Dorothy M. Bradley on the State Water Plan Advisory Council. This appointment is subject to the terms and conditions stated in Executive Order No. 20-86, dated December 31, 1986. Rep. Ream's term is scheduled to expire on December 31, 1988.

SIGNED: 
TED SCHWINDEN
Governor

DRAFT

THE MONTANA STATE WATER PLAN: A HANDBOOK ON THE PROCESS

This handbook is designed to clarify the goals, objectives, and procedures of Montana's state water plan. It describes the planning process and specifies the roles and responsibilities of those involved in formulating and implementing the plan. It is also recognized that ongoing water management policies, decisions, and activities should be incorporated into the state water plan. A description of the separate but related process for incorporating these into the state water plan will be added later as a supplement to this handbook.

I. GOALS AND OBJECTIVES

In 1967, the Montana Legislature passed the Water Resources Act which outlines several water management goals for the state (Section 85-1-101, MCA). The legislature also prescribed the formulation of a state water plan as the way to accomplish these goals (Section 85-1-101(10), MCA). According to the statutory guidelines, the state water plan should be comprehensive, coordinated, provide for multiple uses, set out a progressive program for the conservation, development, and utilization of the state's water, and propose the most effective means by which the state's water resources may be used for the benefit of the people with due consideration of alternative uses and combinations of uses (Section 85-1-203, MCA).

The Department of Natural Resources and Conservation (DNRC) is responsible for developing the state water plan, but obviously not all water management authority or expertise resides there. Likewise, the "state" in state water plan is interpreted as a geographical area, and not as pertaining solely to state government. In the process of formulating the plan, the law requires DNRC to consult with and solicit the advice of the legislature's Water Policy Committee, hold public meetings prior to plan adoption, adopt the plan with the approval of the Board

of Natural Resources and Conservation, publish the plan, and submit it to the Water Policy Committee and to each general session of the legislature. However, a truly comprehensive state water plan requires the assistance and cooperation of many other public and private entities.

Given these broad guidelines, the goals of the state water plan are twofold: (1) to ensure that water is available when and where it is required to meet the social, economic, and environmental needs of the people of the state; and (2) to provide a comprehensive framework to coordinate and integrate the management of the state's water resources among the many entities with water management responsibilities in Montana. Water policy goals and their relation to the state's environmental, social, and economic goals will be articulated, conflicts identified, and priorities established. The plan will consider the conjunctive management of surface and groundwater supplies, integrate water quantity and quality concerns, and incorporate land use issues. Finally, the plan will result in specific policies, program decisions, management prescriptions, and/or decision making criteria for selected water resource issues or activities in specific basins.

II. THE PROCESS

The process adopted to formulate Montana's state water plan is based on the concept of consensus-building. It is an issue-oriented process intended ultimately to address the full-range of water management issues facing the state. The process is also based on the recognition that a large number of federal, state, local, tribal, and other entities have a role in the management of Montana's water, and that numerous parties are affected by water management decisions, including irrigators, municipalities, energy and industrial developers, and fish, wildlife, and outdoor enthusiasts. Accordingly, the planning process provides an opportunity for all to be involved in the formulation of the plan, thereby promoting coordination in defining water management objectives. The planning process is

also continuous and adaptable, recognizing that social, economic, and environmental objectives and needs change over time. Finally, it is designed to foster agreement and reduce conflict among water managers and affected parties through negotiation and joint problem solving, thereby creating a higher likelihood that the plan recommendations will result in action.

The development of the plan will occur in two parts. The first part involves documenting, evaluating, and updating the legal and institutional framework for addressing water management issues with statewide significance, such as agricultural water use efficiency, groundwater management, and instream flow protection. The intent of this part of the planning process is to better define Montana's water management objectives and to develop the best possible set of legal and institutional tools for achieving them. After the issues with statewide signficance have been satisfactorily addressed, the planning process will move to a consideration of basin-specific water management concerns. Utilizing the legal and institutional tools and policies developed during the first part of the process, the objectives of basin-specific planning efforts are to document available water supplies and existing uses and rights, to project future water resource needs and priorities, and to integrate water, land, environmental, social, and economic goals, identify conflicts, and assess tradeoffs in order to optimize water use within the basin. (Note: This handbook focuses on the process for addressing statewide water management issues. While it is anticipated that the basin-specific planning process will be similar to the process outlined here, some slight deviations are also expected. The handbook will be updated to reflect these modifications in the process when the DNRC begins developing basin-specific components of the plan.)

The planning process itself consists of 23 steps which fall into three distinct phases. In the first phase, Issue Analysis, critical water resource management issues facing the state are identified, and broad-based Technical Advisory Committees are formed to collaboratively analyze each issue, explore options,

and develop recommendations. During Phase II, Plan Development, specific plan components are developed based on the issue analysis and direction from the State Water Plan Advisory Council. Then, when the Advisory Council determines that the plan components are ready, they are subjected to a broad public review and comment period. Finally, during Phase III, Plan Adoption and Implementation, a formal hearing is conducted, approval from the Board of Natural Resources and Conservation is sought, and the recommended actions implemented, monitored, and evaluated. Once implementation occurs, in whole or in part, plan components are replaced with plan implementation summaries which document the policies adopted and activities undertaken as a result of the plan.

The specific steps within each of these three phases are described in detail below. At the discretion of the State Water Plan Advisory Council, a particular issue may need to go through the same step more than once before sufficient agreement is reached by the parties involved and the process can proceed. The attached chart outlines the state water planning process.

A. PHASE I - ISSUE ANALYSIS

1. DNRC Recommends Issues

The state water planning process is initiated by the identification of specific issues or problems. Several parties are involved in the identification and prioritization of issues, including the legislative Water Policy Committee, the State Water Plan Advisory Council (SWPAC), state and federal natural resource managers, representatives from a variety of interest groups, and other water experts throughout the state. The DNRC holds at least one issue identification meeting each year at which all these parties can express their views on what the highest priority issues are.

The DNRC uses this information to recommend issues to the State Water Plan Advisory Council. Issues are presented by DNRC in brief summary fashion, lead agencies are proposed to serve as

staff for each issue analysis, and ideas are expressed about the direction the issue analyses could take.

2. SWPAC Selects Issues

The SWPAC selects the issues to be addressed by the planning process in each regular planning cycle and approves consideration of other issues as they may unexpectedly arise. When selecting issues, the SWPAC also provides a sense of direction to the TAC on the assumptions to be used in preparing the scope of work.

3. TACs Prepare Study Plan for each Issue

The DNRC appoints a Technical Advisory Committee (TAC) for each issue selected by the SWPAC. Each TAC is unique, with representatives from the different parties affected by or interested in a given issue, including but not limited to state and federal agencies, irrigators, municipalities, energy and mining groups, Indian tribes, and fish, wildlife, outdoor, and environmental groups. Representatives of other government agencies are appointed to the TAC in this way: the DNRC will notify the head of the agency and suggest that someone from that agency should serve on the TAC, identifying the individuals or skill types desired, as appropriate. Also, if the lead agency is other than the DNRC, that agency must agree to perform this role at this point. Otherwise, the DNRC is the lead agency.

Next, the DNRC, with the input of the lead agency, drafts a study plan outline and convenes a meeting with TAC members. The purpose of the meeting is (A) to determine if additional parties should be represented on the TAC; (B) to define the parameters of the issue in question; (C) to agree to some basic assumptions that will be used for analyzing the issue; (D) to anticipate outcomes or products of the analysis; and (E) to provide guidance to the lead agency for preparing a more detailed study plan. To the extent possible, consensus decisions are sought. Where agreement is not reached by all TAC members, all positions are documented and presented to the SWPAC.

4. SWPAC Reviews Study Plan

Once the TAC has examined the issue and the lead agency has developed a detailed study plan, the SWPAC reviews, modifies as necessary, and approves the study plan. The SWPAC also provides policy direction where needed, and suggests any needed additions to the TAC.

5. Lead Agency Drafts Issue Paper

After the SWPAC approves the study plan, the lead agency drafts the issue paper. The issue paper conforms to a standard outline by (A) defining the issue; (B) assessing the significance of the issue; (C) providing a general policy statement on how the issue should be addressed; (D) describing and evaluating existing policies, programs, and practices related to the issue; and (E) identifying and evaluating options to address the issue. Each issue paper contains certain standard options. The standard outline for each Issue Paper is as follows:

The Issue
- Background
  - Significance
  - Proposed Policy Statement
- Existing Policies, Programs, and Practices for Addressing the Issue
- Discussion of Options
  - No Action
  - Data Collection and Research
  - Public Education
  - Coordination Mechanisms
  - Administrative Action
  - Legislative Action
  - Other
  - Summary of Options
- TAC Recommendations
- Bibliography

While the lead agency assumes primary responsibility for drafting the issue paper, it works closely with the DNRC staff to ensure that the paper meets the guidelines required in the state water planning process.

6. TAC Reviews Issue Paper and Develops Recommendations

Once the lead agency has completed a draft of the issue paper, the paper is mailed to the TAC members and a meeting scheduled for a joint review of the paper. TAC members from government agencies review the paper based either on their own professional judgment and/or based on agency positions, depending upon their direction. These TAC members must consult with the appropriate agency managers on sensitive issues or items related to agency policy. It should be noted that agency positions may also be presented at other points in the process. During the meeting, which is facilitated by the DNRC staff, the TAC (A) evaluates the technical accuracy of the issue paper; (B) assesses the options and identifies additional options that may not have been addressed; and (C) develops recommendations. Since the primary goal of this meeting is to examine options and develop recommendations, the meeting is not to turn into a page-by-page critique of the issue paper. Editorial and technical comments are submitted in writing to the DNRC staff and the lead agency. To the extent possible, consensus recommendations are sought on the options and recommendations. Where this is not possible, the DNRC and the lead agency document the positions and rationales of each TAC member or agency.

7. Lead Agency Revises Issue Paper and Prepares Executive Summary

After the TAC reviews the issue paper, the lead agency, again in cooperation with the DNRC staff, revises the issue paper accordingly. The lead agency also prepares an Executive Summary of the issue paper. This summary briefly and succinctly defines the problem, provides a policy statement, presents the necessary background, and specifies the policy issues, options, and recommendations.

Once the issue paper and Executive Summary are finalized, the DNRC mails them to the SWPAC and the agencies with relevant water management responsibilities. The DNRC staff also sets up a meeting with the SWPAC to discuss the issue paper.

8. Resource Management Agencies Review Issue Paper and Provide Comments

After the TAC completes the issue paper and Executive Summary, it is also mailed to the relevant resource management agencies with an agenda for the next SWPAC meeting. These agencies review the policy implications of the recommendations contained in the issue paper. It is anticipated that these agencies would offer concurrence or disagreement with proposals in the issue paper, or enunciate any other positions or thoughts to the SWPAC, prior to or at the meeting to discuss the issue paper.

9. SWPAC Reviews Issue Paper and Provides Direction for Draft Plan Component

The SWPAC convenes to review the issue paper and the Executive Summary. The principal purpose for this meeting is to reach agreement that the issue has been adequately evaluated and to provide direction for dealing with the issue in the state water plan. The SWPAC reviews all the options presented, as well as others that may emerge during the meeting. It also responds to questions and comments from resource management agencies, TAC members, and other parties. Moreover, the SWPAC seeks consensus on recommendations to address the policy issues in question. The SWPAC may reject, revise, and/or adopt the problem analysis and recommendations of the TAC. Finally, the SWPAC provides specific directions for drafting plan components. The lead agency completes a final version of the issue paper for furture reference once drafting of the plan component is approved.

B. PHASE II - PLAN DEVELOPMENT

10. DNRC Drafts Plan Component

After the SWPAC adopts recommendations for a given issue, the DNRC prepares a draft plan component for that issue in cooperation with the agencies and other entities responsible for implementing the recommended actions. The principal task at this

step in the process is to develop an acceptable implementation plan or strategy. The plan components are based on the issue papers, the Executive Summary, and the direction from the SWPAC. They follow this standard outline:

Introduction
Background
Policy Issues, Options, and Recommendations
  Options
  Summary of Policy Recommendations
Plan Implementation
  Legislative Action
  Administrative Action
  Financial Requirements
  Time Schedule
Supporting Documents

When typeset, a plan component will normally range from four to ten pages.

11. Resource Management Agencies Review Draft Plan Component and Provide Comments

The DNRC mails the draft plan component to the entities responsible for implementing recommended actions. This may or may not entail meeting with key entities to work out details or differences of interpretation dealing with items in the plan component. Representatives of the agencies may also attend the following SWPAC meeting to express their concerns.

12. SWPAC Approves Draft Plan Component

Once the draft plan component is complete, the SWPAC reviews it to ensure that it reflects the technical analysis and recommendations developed earlier in the planning process. The only new information in the draft plan component should be the implementation strategy. Resource management agencies and other parties with implementation responsibilities may be called upon at the meeting to explain any questions or concerns with the implementation strategy. The SWPAC must approve the release of the draft plan component prior to public review and comment.

13. Public Review of Draft Plan Component

After the SWPAC approves the plan component, and any necessary revisions are made, the DNRC staff prepares appropriate material to inform the public about the proposed plan component and the time and location of meetings at which the public can comment. The public information and education materials typically include the draft plan component, press releases, public service announcements, and personal letters. The materials are distributed, and the DNRC staff conducts several public meetings throughout the state. The purpose of the meetings is to allow the public to review and comment on the state water plan component, and to get a sense of whether the recommended actions are in the public interest. Public comments are recorded, summarized, evaluated, and incorporated into the draft plan component. While DNRC coordinates the public involvement process, it is normally a cooperative effort involving other key agencies or interests connected with the issue.

14. Water Policy Committee Reviews and Comments on Draft Plan Component

At the end of the public review and comment period, the DNRC presents the draft plan component and results of the public meetings to the legislative Water Policy Committee (WPC). The WPC can provide its comments on the draft plan component, particularly the recommendations requiring legislative action.

15. DNRC Prepares Proposed Final Plan Component Based on Public Comments

Once the draft plan components are reviewed by both the public and the WPC, the DNRC prepares a proposed "final" draft of the plan component based on the public comments. The DNRC also summarizes the public comments for the information of implementing agencies and the SWPAC.

16. Resource Management Agencies Review the Proposed Final Plan Component

Resource management agencies review the proposed final plan component to ensure that any public comment revisions are acceptable. If the resource management agencies are concerned with any of the revisions, such concerns are raised and discussed at the following SWPAC meeting.

17. SWPAC Approves Proposed Final Plan Component

The DNRC presents the public comments on the draft plan component and explains any revisions based on public comments to the SWPAC. Resource management agencies and other parties responsibilities for implementing recommended actions are asked to concur or express outstanding concerns at this time. The SWPAC then approves, modifies, or requires additional work on the proposed final plan component.

C. Plan Adoption and Implementation

18. DNRC Conducts Public Hearing on Proposed Final Plan Component

The DNRC must conduct a formal legislative-type (not contested case) public hearing prior to adopting the plan component. This could be viewed as a last chance for the public to make its views known. If information is presented at the hearing that previously was not considered, or if public opposition to the plan is shown to be greater than previously determined, the DNRC could resubmit a plan component to the SWPAC for reconsideration.

19. BNRC Approves Adoption by DNRC

The DNRC must have the approval of the Board of Natural Resources and Conservation (Board) before adopting the proposed final plan component. This is requested at the next regular Board meeting after the hearing on the proposed final plan component. If the Board refuses its approval, the plan component

is resubmitted to the SWPAC for reconsideration.

20. DNRC Adopts and Distributes Adopted Plan Component

After the DNRC receives Board approval for adoption, a memorandum of adoption is prepared and distributed with the plan component to interested parties as well as to those entities responsible for implementing actions specified in the plan. As part of this process, a report to the legislature is prepared every other year. This legislative report summarizes legislative actions needed to implement the state water plan and reports progress on other aspects of plan implementation.

21. Appropriate Entities Implement Plan Component

Once the plan component is adopted, the recommended actions are implemented. The DNRC does whatever it can to foster and support plan implementation, which includes those recommended actions that fall within its own responsibility.

22. DNRC Monitors and Evaluates Implementation of Plan Component

The DNRC staff monitors and evaluates implementation success. Periodic reports are made upon request to the SWPAC, the WPC, and biennially in legislative reports on the status of plan component implementation.

23. DNRC Prepares Plan Implementation Summary

After the actions recommended in the plan component are fully implemented, or, if warranted, at intermediate stages of implementation, the DNRC documents this success by preparing a comprehensive plan implementation summary for each issue. These plan implementation summaries include (A) statements of adopted policy goals and objectives; (B) descriptions of implemented and active programs, management guidelines, decisions, and decision-making criteria used to achieve those goals and objectives; and (C) explanations of any expected future activities. In time, the plan implementation summaries will

constitute a comprehensive documentation of all ongoing state water management policies, programs, and activities. These summaries undergo the same distribution as the final plan components and replace the plan components in the plan binder once implementation is complete.

MONTANA STATE WATER PLANNING PROCESS

Phase I - Issue Analysis

1. DNRC Recommends Issues
2. SWPAC Selects Issues
3. TACs Prepare Study Plan for Each Issue
4. SWPAC Reviews Study Plan
5. Lead Agency Drafts Issue Paper
6. TAC Reviews Issue Paper and Develops Recommendations
7. Lead Agency Revises Issue Paper and Prepares Executive Summary
8. Resource Management Agencies Review Issue Paper and Provide Comments
9. SWPAC Reviews Issue Paper and Provides Direction for Draft Plan Component

Phase II - Plan Development

10. DNRC Drafts Plan Component
11. Resource Management Agencies Review Draft Plan Component and Provide Comments
12. SWPAC Approves Draft Plan Component
13. Public Review of Draft Plan Component
14. WPC Reviews and Comments on Draft Plan Component
15. DNRC Prepares Proposed Final Plan Component Based on Public Comments
16. Resource Management Agencies Review Proposed Final Plan Component
17. SWPAC Approves Proposed Final Plan Component

Phase III - Plan Adoption/Implementation

18. DNRC Conducts Public Hearing on Proposed Final Plan Component
19. Board Approves Adoption by DNRC

20. DNRC Adopts and Distributes Adopted Plan Component

21. Appropriate Entities Implement Plan Component

22. DNRC Monitors and Evaluates Implementation of Plan Component

23. DNRC Prepares Plan Implementation Summary

MONTANA WATER INFORMATION SYSTEM

State Water Plan
Issue Paper No. 1

Water Resources Division
Department of Natural Resources and Conservation
Helena, Montana

in cooperation with

Montana Water Information System
Natural Resource Information System
Montana State Library

April 15, 1988

TABLE OF CONTENTS

I. THE ISSUE
   1. The Problem
   2. Background

II. EXISTING POLICIES, PROGRAMS, AND PRACTICES

   1. State and Federal Water Resource Agencies
   2. The Montana Water Information System
      A. Goals and Objectives
      B. Principal Activities

         1) Phase 1
            a) Data Base Development and Expansion
            b) Survey of other States' Systems
            c) Access to other data bases
            d) Quality Control

         2) Phase 2
            a) Geographic Information System
            b) Phase 2 Implementation

III. DISCUSSION OF OPTIONS

IV. TECHNICAL ADVISORY COMMITTEE RECOMMENDATIONS

I. THE ISSUE

1. The Problem

In Montana, there are at least 26 federal, state, and private organizations involved with securing, generating, managing and recording water resources data (see Appendix A). Each entity has a distinct purpose for its water-related information, and as a result, a massive amount of data are being collected and maintained in a variety of formats ranging from manual systems to extensive computer data bases. While it is often necessary and appropriate for each organization to collect data and maintain their own data base to address distinct purposes, the lack of a central data managing organization, the dissimilarity of data base designs, and the lack of consistency in data collection procedures among the various entities presents problems.

One of the chief difficulties is finding out which agency has what data. In many cases, water users and managers who need information on Montana's water resources must contact several agencies and the data needed must be obtained from more than one agency. Consequently, because there is no system or "gatekeeper" to track the location and availability of existing data, it is common that a great deal of valuable data that have been generated and collected at great expense are not utilized.

Another problem is the different ways that each water data agency chooses to store and maintain its information. When water users and managers outside the agency need to access the information, they are often confronted with the challenging task of learning the data format and how to manipulate the data to meet their own specific needs. This task is compounded when the data are obtained from more than one agency and the formats are different. Securing and then converting water data in the format that is useful, therefore, can be an expensive and time-consuming process.

A third problem relates to the reliability and usability of the existing data due to the lack of standard methods, sampling systems, and data collection procedures. Without consistent quality control procedures in place, water information users are skeptical of data collected in the past and are less likely to rely on existing data to meet current needs.

The elaborate process to obtain and then utilize data often breeds duplication of effort because in many cases it is easier to gather new data for the specific purpose at hand than to track down and manipulate existing data that might be applicable. Even more critical is that data are frequently not readily available when important decisions need to be made.

In summary, there are numerous governmental agencies and other organizations generating and using water resources data, and the data systems that are developed through these activities are critical to the function of the host agency. On the other hand, it is extremely difficult for public and private data users, even for data generators, to keep apprised of what data exist, where and how the data are collected and stored, and who is the appropriate person to contact to retrieve actual data. Furthermore, the process of keeping all players appraised of each other's data management efforts and needs is a monumental task that no organization can afford to add to its already large workload. Therefore, it is critical to develop a water data management system that can function in a coordinating capacity on behalf of Montana agencies and organizations that generate and use water data.

2. Background

The Montana Legislature recognized the problems associated with water data accessibility and standardization as early as 1973. The Water Use Act of 1973 authorized the Department of Natural Resources and Conservation (DNRC) to prepare a comprehensive and continuing inventory of the state's water resources, and to collect, organize, and disseminate information on water use. Although appropriated funds were insufficient

to implement the program as authorized, this legislation was a very important first step in defining the need and initiating momentum for a water data management system.

In 1979, the U. S. Geological Survey (USGS) initiated the National Water Use Data System to organize data on water use. In support of this program and the USGS, the DNRC in 1980 put together a plan for the collection and management of water use data in Montana; however, funding was not available to implement the plan.

In 1982, the DNRC designed and completed a study entitled "A Water Protection Strategy for Montana-Missouri River Basin." The report noted that:

> "At the present time much of the water resources data is fragmented, neither indexed nor inventoried, not recorded in a standard format, and most importantly, not readily accessible to those who need the information for making management decisions."

The authors of the document recommended that a water resources data management system should be developed as a part of the state's protection strategy. Although this recommendation was not acted upon directly in the 1983 Legislature, the study further clarified the need for an integrated state system.

In 1985, the Select Committee on Water Marketing recommended the establishment of a water resources data management system within DNRC. Language authorizing this program was taken from the Water Use Act of 1973

> "...establish and maintain a centralized and efficient water resources data management system sufficient to make available and readily accessible, in a usable format, to state agencies and other interested persons, information on the state's water resources that affect the state, existing and potential uses, and existing and potential demand."

The Select Committee recommended an annual appropriation of $50,000 to establish and implement the system. This recommendation was not approved by the Legislature; instead, the above language was incorporated into HB 680 which was passed in 1985 and laid the foundation for the continuing efforts described below.

At the same time in 1985, the Legislature passed a separate bill which provided funding for the Natural Resources Information System (NRIS) and the Montana Natural Heritage Program (MTNHP) through a variety of sources, including a Resource Indemnity Trust grant, Montana Department of Fish, Wildlife and Parks license fees, federal funds from the Montana Department of State Lands (through the federal Office of Surface Mining Reclamation and Enforcement - OSMRE), and private funds from The Nature Conservancy. NRIS was placed in the Montana State Library and given the mandate to be a "comprehensive program for the acquisition, storage, and retrieval of existing data relating to the natural resources of Montana."

In April of 1986, the NRIS conducted a mail survey of natural resource data users to identify and determine user needs. Sixty-six percent of the 481 questionnaires were completed and returned. Respondents indicated that water resources data are by far the most difficult to obtain. Approximately 50 percent of the respondents indicated that data on groundwater quality and quantity are difficult or very difficult to obtain. Next in order of difficulty of access were data on surface water quality and quantity. As a result of this survey, NRIS made the management of water resources data a top priority. At the same time, DNRC continued to pursue efforts to fulfill the mandate outlined in HB 680. Consequently, DNRC and NRIS agreed to cooperate in developing a comprehensive water resources data management system.

The first step of this cooperative development effort was to create a Water Resources Data Management System Advisory Committee. The DNRC and NRIS asked the directors of the major water data collection and management agencies to appoint a Committee delegate who could provide guidance in designing a water data management system (see Appendix B).

After meeting several times in 1986, the Advisory Committee wisely concluded that a new centralized data base, whereby all users would be tied into one single system, would be too costly to implement and too complex to operate and maintain, given the diverse needs of system users. Instead, the Committee recommended that a central access point to decentralized data sources should be developed. In other words, Montana's water data management system would not be a central data storage facility but rather a means to identify sources of important data (i.e. a road map) and then coordinate access to those sources. This user-oriented strategy, which is quite similar to how NRIS functions, enables each agency to continue managing its own data to meet its own specific needs but at the same time allows for maximum sharing of water data among participating agencies. NRIS, in cooperation with DNRC and the Advisory Committee, was selected as the lead agency to design and implement the system, which is now called the Montana Water Information System or MWIS.

II. EXISTING WATER POLICIES, PROGRAMS, AND PRACTICES

1. State and Federal Water Resource Agencies

Currently, there are several agencies involved with collecting and maintaining many different types of water resource information. The Department of Natural Resources and Conservation, the Department of State Lands, the Department of Health and Environmental Sciences, and the Department of Fish, Wildlife and Parks all have active programs that involve collection and use of water quantity or quality data. There is also a vigorous program related to development of a water rights data system at DNRC. In addition, the Statewide Groundwater Information Center located at the Montana Bureau of Mines in Butte serves as a storage and retrieval facility for groundwater data. In Bozeman, the Surface Water Information Center of the Water Resources Center at Montana State University serves as a data repository for water-related research conducted in the University System.

On the federal level, agencies such as the U. S. Geological Survey, the Soil Conservation Service, the Forest Service, the Environmental Protection Agency, the Bureau of Land Management,and the Bureau of Reclamation are active in the water data management area. In addition, there are several consulting firms and industries in the private sector whose activities often include the collection of water data.

It is noteworthy that the function of the Montana Water Information System (MWIS), that is to serve as a clearinghouse for all water data sources and users, was designed according to the recommendations of the Water Advisory Committee which includes members from most of the state and federal agencies mentioned above. As such, the MWIS will not duplicate these programs but will cooperate with and coordinate information exchanges between the various state and federal agencies, and the private sector.

2. The Montana Water Information System

A. Goals and Objectives

With the chief functions of the MWIS established, NRIS was able to secure funds to develop and implement the Montana Water Information System through a Water Development Grant from DNRC. Strong support for the project was demonstrated when the NRIS grant proposal to develop MWIS was ranked first by the Water Policy Committee of the Legislature.

The goals and objectives for MWIS, as established by its Advisory Committee and staff, are as follows:

1. Determine the water data storage and retrieval needs of Montana data users;

2. Design a water data storage and retrieval system that meets user needs in Montana;

3. Establish a central point of contact and coordinate quick and efficient access to existing sources of water information for any particular geographic area within the state;

4. Design and promote a quality control system to ensure the usability of the data; and

5. Identify potential and existing duplicative data collection efforts for the purposes of reducing or eliminating these efforts and reducing costs associated with these efforts.

B. Principal Activities

The development of a statewide water information system has been designed in two phases. Phase 1 is designed to achieve the goals outlined above and will be completed by June 1989. At that point, Phase 2 is designed to maintain and strengthen the operational status of MWIS and to facilitate and promote use of the system among the agencies and organizations it is designed to serve. Funding is still being sought to implement Phase 2.

1. Phase 1: Completion of the activities outlined below will lead to an effective data management system that is tailored to Montana's needs and fosters maximum data sharing. Rather than develop a new centralized data base, the MWIS provides centralized access to existing, decentralized data bases. MWIS will link into existing state and federal data bases via modem from the Montana State Library, thereby providing access to these sources from one point. The MWIS staff, a water information specialist and a technician, can provide user assistance in obtaining and interpreting the data accessible through the system. Providing this central contact point and user assistance will be permanent features of MWIS both in Phase 1 and 2.

Phase 1, underway since the fall of 1987, includes the following activities.

a) **Data Base Development and Expansion:** A thorough inventory of water resources information sources in the state has commenced. In addition, key users of water resources data are being interviewed to determine specific data needs and existing impediments to retrieving data. The insight gained through these interviews will supplement the more general user needs assessment conducted by NRIS in April and May of 1986. Based on this feedback, MWIS will identify information sources that best meet the needs of Montana's water data users. Subsequently, the highest priority will be to provide access to those sources.

Efforts are also underway to identify significant unautomated data bases and negotiations will be conducted to convert these data bases to machine-readable format, allowing entry into the most appropriate existing data base. It is suspected that a great deal of valuable information is being overlooked because it is not in a usable form, or the data are simply unknown to those who may be able to apply it to current needs.

As the above inventory is being completed, work to build the MWIS data source index data base will commence. This index will be based on the NRIS indexing system and the USGS NAWDEX system which are used to index sources with respect to geographic coverage and subject area. Each data source will have an entry in the MWIS data base with a detailed description of the kind of information available. When someone comes to MWIS with a data request, the data base can be searched using descriptors (keywords, subject codes, geographic location numbers, etc.) to locate the kind of data needed. The product of the search will be a listing of the sources having that kind of data. Once the appropriate data sources are identified, the user can access the sources directly via modem (if appropriate) or request that MWIS contact the source, relay the data request, and obtain the relevant information on behalf of the user. Such an index will be extremely useful for system users.

b) **Survey of Other States' Systems:** Other states' water resources data management systems are being reviewed to determine whether any of these systems are relevant to or applicable for Montana. An in-depth study will be made of those states (i.e., Idaho and Washington) which most closely resemble Montana in terms of needs and resources.

c) **Access to Other Data Bases:** MWIS is now accessing the USGS WATSTORE through the Helena USGS office PRIME computer. WATSTORE contains data on surface and ground water quantity and quality. Also, an agreement with the USGS allows MWIS to have a copy of the NAWDEX data base in-house. NAWDEX is essentially an index listing of all water quality data collected by the USGS, the U. S. Environmental Protection Agency (EPA), and other participating organizations. NAWDEX does not contain the actual data but indicates where data has been or is being collected and who to contact to obtain the data. Having this kind of direct access to WATSTORE and NAWDEX helps to ensure the integrity of the data obtained during retrievals by eliminating long transit distance between MWIS and the actual data bases.

Negotiations are ongoing to gain MWIS access to other data bases as well, such as those maintained by the Montana Bureau of Mines and Geology (Groundwater Information System), the Department of Fish, Wildlife and Parks (Montana Rivers Study Data Base), the Department of Health and Environmental Science, the U. S. Environmental Protection Agency (STORET), and the U. S. Soil Conservation Service. These data sources contain information that are likely not included in WATSTORE and NAWDEX.

d) **Quality Control Procedures:** One of the major problems that arises when so many different organizations are collecting and using water resources data for a variety of purposes is that there is very little standardization or consistency in collection techniques, quality assurance evaluation procedures, and data storage and retrieval formats. As a result, it is often difficult to determine whether data collected by one agency for one purpose can be used by another agency for a different purpose. Other times, although the collection procedures are known and even consistent, the data from one agency may not be in a format such that another agency can use it.

Therefore, one function of the MWIS is to provide users with some indication of the quality of data that is available. For this reason, MWIS will develop and design quality control descriptors to indicate how data were collected and to indicate the source agency's confidence level in that data. These descriptors will not be evaluative; in other words, MWIS will not analyze the integrity or reliability of the data. Instead, the descriptors will be developed to give MWIS users an indication of the reliability of the data accessed, and hence the utility of that data for the specific purpose at hand.

In the cases where the data appear relevant and reliable (based on descriptors) but remain inaccessible due to format problems, MWIS will act as a translator, assisting users (and ultimately training them on how to make the necessary conversions to an operable format, thus allowing users to apply the data to their needs.

MWIS will also facilitate the process of developing recommendations for standardizing the sampling and analysis programs of state agencies, universities, and the private sector. The standards recommended will be based on existing standards required by the USGS and EPA for entering data into WATSTORE and STORET, respectively; data that meet these standards are generally considered to be valid or acceptable for legal purposes. The adoption of these standards for Montana water data will strengthen an agency's position should its data be involved in enforcement proceedings or litigation. Adopting these standards, although voluntary, would also make data sharing among agencies more reliable and much easier. Recommendations will address the need for a training program for field and personnel willing to adopt the suggested standards.

2. Phase 2: When Phase 1 activities have been completed, Phase 2 will be initiated. The major thrust of Phase 2 is to ensure the continued operation of MWIS in the long term by promoting MWIS use among the agencies it is designed to serve and by refining the system to keep pace with advances in data management technology. MWIS must be viewed as a dynamic program, on the one hand providing a basic level of service

consistent with its well-defined mandate and on the other hand providing the flexibility to meet the changing demands and needs of water data users in Montana.

As the project moves into Phase 2, the key will be to develop a workable framework to maintain a long-term Water Information System without increasing costs to the State. It is expected that by mid-1989, the MWIS will be a valuable tool for Montana water data users, with a number of interagency agreements in place that facilitate information sharing and efficient data management. In Phase 2, efforts will focus on strengthening those agreements and further developing the MWIS infrastructure, thereby ensuring that the system is a fully operational, cost-effective tool for water information users and managers for many years to come.

To succeed, the emphasis will shift from growth to maintenance and constant refinement of the system. With the rapid developments in data management systems and the proliferation of information, any data management program would quickly become obsolete without a commitment to and plan for how it will be maintained. As the central access point on behalf of all water data users, MWIS provides the linkages to a multitude of national and statewide data bases each with different retrieval commands and protocols. As technology improves and more information is added to these data bases, the ways in which MWIS will access this valuable information will also change.

But MWIS will not operate and change on its own. Phase 2 must concentrate on capitalizing on Phase 1 investments in staff who have become familiar with the various data bases, how to design and conduct retrievals, and generally keep current on the various systems. By providing these services, MWIS frees system users from having to constantly stay current and relearn the various data bases for themselves, thus allowing them to obtain useful data retrievals efficiently to meet their specific goals and objectives.

An integral part of providing valuable services is to ensure that potential system users are informed that MWIS exists. One opportunity to meet this goal is to conduct training programs and provide demonstrations on MWIS for the agencies and individuals who could benefit from its use. For potentially frequent users, training would be instrumental in meeting longer term goals of remote use and self-directed access to the System.

Another activity of MWIS in Phase 2, which was suggested by the Technical Advisory Committee for the MWIS component of the state water plan (Agenda C), is to coordinate a process to help water resource data generators and users identify and prioritize data uses and needs in the context of fully utilizing state-of-the-art information management technology and modelling systems. Sophisticated systems are rapidly developing that allow data to be analyzed and manipulated in ways that are presently not possible. The key to using these new analytical tools, however, is that these systems require certain types of data fields to be included in data bases before the data can be linked to these systems.

One such system is a Geographic Information System (GIS) which allows a wide variety of data from various sources to be analyzed and displayed on thematic maps. Data from multiple sources can be essentially "combined" and analyzed to generate maps and other data products to address issues which could not be addressed successfully using just one data set. Products from the GIS include 1) maps, 2) tabular data reports, and 3) information retrievals. Most importantly, once the data are in place on a GIS, these maps and data products can be generated very rapidly so that the data are used efficiently and are available in a usable form when needed most.

For example, if the State needed to identify wells which are at risk for contamination from underground fuel storage tanks, a GIS could be used to take data on the location of underground fuel tanks and wells in the State and "combined" them to generate a single map showing the tank and well locations. Further, areas where tank and wells were within (say) five miles could be highlighted on the map, making location of high risk wells easy. There are many instances like this where a GIS could make complex data integration tasks much less difficult.

Although the above example sounds very interesting, it is completely impossible unless each of the mentioned data sets have compatible data structures and contain important data fields like latitude and longitude. More often than not, different data bases, even though they contain similar data, have different data structures and often do not include location type data (i.e. latitude and longitude coordinates) that are crucial to a GIS. If a GIS is ever to be employed and utilized for water resource-related issues, those agencies now maintaining data bases and desiring to use the GIS as a management tool must take steps to ensure that current data bases begin to include the necessary data fields and conform, or be adaptable to conform, to standard GIS format.

To strengthen the MWIS infrastructure and to assist Montana water data users and generators plan for the use of new data management technology, such as a GIS, when that technology becomes available, the following steps will be taken:

1. Maintain a central access point to data for water information users and continue to serve their needs.

2. Maintain the NRIS staff to ensure the MWIS program function, maintenance and upgrade, and promotion.

3. Work closely with the Water Resources Data Management System Advisory Committee whose function is to assist the MWIS program to maintain its service to system users and secure funding.

4. Cross-train MWIS, NRIS and State Library staffs with regard to the various data bases being accessed by MWIS, thus decreasing program dependancy on one person, i.e. the Water Information Specialist.

5. Provide training to system users to encourage remote and independent use of MWIS, thus accommodating an increase in system use while maintaining the MWIS staff at its present level.

6. Obtain funding to purchase additional computers, to be housed in the Montana State Library, to accommodate increased public access and use of MWIS.

7. Expand the MWIS Advisory Committee to include experts in GIS and natural resources from state and federal agencies. This expanded committee would provide guidance in identifying computer needs, developing data standards, and identifying cooperative funding sources for the acquisition of some types of data. The committee could also help prioritize what data should be included to meet the most critical water resource issues facing Montana.

8. Use the information from the survey of Phase 1 and the expertise of the MWIS Advisory Committee to help those organizations maintaining data bases and interested in using a GIS to coordinate with each other in identifying and prioritizing common potential GIS uses and data requirements.

III. DISCUSSION OF OPTIONS

The State of Montana has few alternatives with respect to water resources data management. One alternative would be to do nothing and to allow each agency and organization to continue its current, largely independent activities and hope that coordination will improve. This alternative is almost certain to perpetuate the present system of fragmented data base development and management, which in the long term, will be neither cost or time efficient.

Another alternative would be to create a new central storage and retrieval system which would absorb data from all sources into one centralized system. However, the flaws in such a system have been identified: It would be very expensive and would not allow agencies adequate flexibility to manage data in the best interests of their own programs.

The ongoing project, on the other hand, will result in a water management system that will coordinate, link, and enhance current decentralized data management programs. The project relies on existing facilities in such a way as to minimize duplication and improve access to reliable water data on behalf of water users and managers. This approach is recognized by the MWIS Advisory Committee as being the most efficient and cost-effective.

VI. TECHNICAL ADVISORY COMMITTEE RECOMMENDATIONS

After meeting to review Phases 1 and 2 of the MWIS project and after considering the options described above, the Technical Advisory Committee for the MWIS component of the state water plan (Appendix C) recommended pursuing the completion of the present project, with emphasis on the following :

1. Complete Phase 1 of the MWIS project as outlined above and produce a report that summarizes progress and status.

2. Proceed with Phase 2, as described in this issue paper, with particular focus on sustaining the services established in Phase I.

3. Continue to monitor developments in water information and the needs of data users and managers including input received from the MWIS Advisory Committee.

4. Expand the MWIS Advisory Committee to include representatives knowledgeable in new information management systems, such as a GIS, to provide guidance for Phase 2 of the MWIS project.

5. Secure funding for Phase 2 and the long-term operation of MWIS with the assistance of the MWIS Advisory Committee.

APPENDIX A

PRINCIPAL AGENCIES COLLECTING WATER RESOURCES DATA IN MONTANA

STATE AGENCIES
- Department of Natural Resources and Conservation
- Department of Health and Environmental Sciences
- Department of State Lands
- Department of Fish, Wildlife and Parks
- Department of Highways
- Montana State University
- University of Montana
- Montana College of Mines and Technology

FEDERAL AGENCIES
- Environmental Protection Agency
- Geological Survey
- Bonneville Power Administration
- Soil Conservation Service
- Bureau of Reclamation
- Corps of Engineers
- Bureau of Land Management
- Forest Service
- Bureau of Indian Affairs

OTHER ORGANIZATIONS
- Montana Power
- Clark Fork Commission
- Flathead Commission
- Groundwater Information System
- Water Resource Center (Montana State University)
- Bureau of Mines and Geology
- Biological Station at Yellow Bay (University of Montana)
- Engineering Experiment Station (Montana State University)
- Institute for Biological and Chemical Process Analysis (Montana State University)

APPENDIX B

MONTANA WATER RESOURCES DATA MANAGEMENT SYSTEM ADVISORY COMMITTEE

Gerhard Knudsen
Dept of Natural Resources & Conservation
Water Management Bureau
1520 East Sixth Avenue
Helena, MT 59620

Tom Patton
University System
College of Mineral Science and Technology
Bureau of Mines and Geology
Butte, MT 59701

Howard Peavy
University System
Montana State University
Water Research Center
Bozeman, MT 59717

Chuck Parrett
U. S. Geological Survey
Water Resources Division
301 South Park Avenue
Helena, MT 59626

Bob McFarland
Dept. of Fish, Wildlife and Parks
Montana State University
Box 5
Bozeman, MT 59717

Tom Reid
Dept of Health & Environmental Sciences
Water Quality Bureau
Cogswell Building
Helena, MT 59620

Rich Moy
Dept of Natural Resources & Conservation
Water Management Bureau
1520 East Sixth Avenue
Helena, MT 59620

Ron Roman
Dept of State Lands
1625 11th Ave.
Helena, MT 59626

APPENDIX C

TECHNICAL ADVISORY COMMITTEE
MONTANA WATER INFORMATION SYSTEM
COMPONENT OF THE STATE WATER PLAN

Gerhard Knudsen
Dept of Natural Resources & Conservation
Water Management Bureau
1520 East Sixth Avenue
Helena, MT 59620

Tom Patton
University System
College of Mineral Science & Technology
Bureau of Mines and Geology
Butte, MT 59701

Howard Peavy
University System
Montana State University
Water Research Center
Bozeman, MT 59717

Chuck Parrett
U. S. Geological Survey
Water Resources Division
301 South Park Avenue
Helena, MT 59626

Bob McFarland
Dept. of Fish, Wildlife & Parks
Montana State University
Box 5
Bozeman, MT 59717

Tom Reid
Dept of Health & Environmental Sciences
Water Quality Bureau
Cogswell Building
Helena, MT 59620

Lee Shanklin
U.S. Environmental Protection Agency
Federal Building
301 South Park Avenue
Helena, MT 59626

Mike Cannon
U.S. Geological Survey
Federal Building
301 South Park Avenue
Helena, MT 59626

Kathie Jewell
Bureau of Land Management
22 North 32nd Street
P. O. Box 36800
Billings, MT 59109

Rosa Nygard
U. S. Forest Service
Federal Building
Box 7669
Missoula, Montana 59807

Carl Key
U. S. Park Service
Science Center
Glacier National Park
West Glacier, Montana 59956

INSTREAM FLOW PROTECTION

State Water Plan

Issue Paper No. 2

Water Resources Division
Department of Natural Resources
& Conservation
Helena, Montana

April 15, 1988

TABLE OF CONTENTS

I. THE ISSUE
1. Background
2. Significance of Instream Flows
3. Goals and Objectives

II. EXISTING POLICIES, PROGRAMS, AND PRACTICES
1. Murphy Rights
2. Water Reservations
3. State Recreational Waterway Program
4. Northwest Power Planning Council Protected Areas
5. Conditioning Water Rights Permits
6. U. S. Forest Service Special Use Permitting Process
7. Federal Reserved Water Rights
8. Wild and Scenic Rivers
9. Indian Treaty Fishing Rights
10. The Public Trust Doctrine
11. Reservoir Management
12. Adjudication Proceedings
13. De Facto Protection

III. FLOW QUANTIFICATION METHODS
1. Flow Quantification Methods for Fish
2. Flow Quantification Methods for Water Quality

IV. PROBLEM STATEMENTS

V. DISCUSSION OF OPTIONS

VI. TECHNICAL ADVISORY COMMITTEE RECOMMENDATIONS

BIBLIOGRAPHY

APPENDIX: INSTREAM FLOW TECHNICAL ADVISORY COMMITTEE

I. THE ISSUE

Montana is a water-rich state. Its mountains form the headwaters of the Missouri and Columbia rivers. Each year, an average of 44 million acre-feet of high quality water leave the state. Millions of tourists enjoy the spectacular streams and lakes of Montana including those of Yellowstone and Glacier national parks, the Lewis and Clark trail, and Montana's numerous wilderness areas and four wild and scenic rivers. Many of these streams are nationally known for their beauty and fish production; in fact, Montana sells the third largest number of non-resident sport fishing licenses in the United States.

Although the water resource of Montana is seemingly plentiful, the state is rightfully classified as semi-arid. Statewide, the average precipitation is about 14 inches; much of that moisture falls as snow over the mountainous regions. For the most part, the eastern two-thirds of Montana receives less than 14 inches of precipitation each year. Thus, irrigation has become an essential ingredient of a stable agricultural industry, the backbone of the state's economy. However, this longstanding use of water for irrigation is not without its price. Each year, the irrigation of approximately 2,807,000 acres of land in Montana depletes about 3,136,000 acre-feet of water from the state's streams. As a result, many streams are at times seriously dewatered. The dichotomy of apparent abundance and large depletions for irrigation use, along with periodic droughts, sets the stage for one of Montana's foremost water resource conflicts: preserving the state's rich instream flow values in the face of increasing consumptive use.

The allocation of water in Montana has traditionally focused on satisfying "offstream" uses for domestic and commercial consumption, irrigated agriculture, industry, and mining. Since the 1970's, however, there has been an increasing demand and effort to protect instream flows for fish and wildlife, recreation, aesthetic and scenic values, and water quality. While there are inherent conflicts between offstream and instream uses of water, the state must consider both uses in making water management decisions. If instream flows are to be protected, effective institutional strategies must be developed and implemented.

1. Background

Water uses can be differentiated as to whether they involve withdrawing water from a natural channel. Offstream uses require diverting water from its natural watercourse. This withdrawn water is then either used and returned to the watercourse or completely consumed. In contrast, instream uses require that a sufficient level of flow be maintained in the natural water course.

Offstream and instream uses may be more or less compatible depending on the location and timing of the different uses within a given river basin. If instream uses are located upstream of offstream uses, there is generally no conflict. For example, the protection of instream flows for fish and wildlife habitat in the upper reaches of a watershed does not conflict with the use of water for irrigation in the lower sections of the watershed. However, diverting water out of a stream is likely to affect instream values downstream of the diversion if return flows are not sufficient in quantity or quality.

In Montana, like other western states, the protection of instream flows has emerged as a major water resource issue for two converging reasons. First, instream values, most notably fisheries, have been threatened by water development projects. The most dramatic example of this threat in Montana occurred in the early 1970's, when the Department of Natural Resources and Conservation received a number of large industrial water use applications for coal-related development in the Yellowstone River Basin. At the same time, energy companies optioned more than 500,000 acre-feet of water from Yellowtail Reservoir, a large impoundment on the Bighorn River, for coal development purposes. The legislature viewed these large permit applications and water sales as a threat to future agricultural and municipal growth in the basin, as well as to the free-flowing status of the Yellowstone. In response to the perceived threat, the legislature enacted a four year moratorium on Yellowstone permit applications of more than 20 cubic feet per second or 14,000 acre-feet of storage. The language of the four-year moratorium

emphasized the need to reserve water for future agricultural and municipal needs as well as for instream flows to protect existing rights, water quality, and aquatic life.

Closely associated with threats from water development projects is the growing appreciation of instream flows for fish and wildlife, recreation, aesthetics, and water quality. In addition, there is an increasing recognition of public rights in free-flowing water. Taken together, these converging trends have raised the issue of instream flow protection to the top of the state's water management agenda.

2. Significance of Instream Flows

Instream flows provide a variety of social and environmental values and experiences that are synonymous with the "Big Sky" state. Instream flows support fish and wildlife, recreation, and scenic and aesthetic resources. These amenities not only attract visitors to the state, but form the core of a lifestyle that many Montana natives know and love. Indeed a significant part of the heritage of Montana revolves around hunting, fishing, and the appreciation of the outdoors.

While Montanans have developed a lifestyle around hunting, fishing, and enjoying the outdoors, these activities, all dependent in one way or another on free-flowing water, also provide economic benefits to the state. According to a recent set of studies, the economic effects of big-game hunting and fishing in the state suggest spending approaches $226.4 million a year, with the potential for hunting and fishing to draw more than $521.5 million annually (Duffield et al., 1987; Loomis and Cooper, 1988; Brooks, 1988; Duffield, 1988). Although these values are substantial, they are conservative since they do not include dollars spent in the pursuit of hiking, picnicing, floating, and otherwise recreating in and around streams and rivers throughout the state. In addition, the figures do not include the commercial value of hunting and fishing, nor do they include the option, existence, or bequest values associated with natural resource use. Finally, instream flows may possess a variety of values that are recalcitrant to economic qualification, such as aesthetic, cultural, scientific, and ecological values.

Instream flows are also important in maintaining the quality of Montana's waters. Natural water quality is closely related to flow — higher flows tend to carry more dissolved solids. In any river, including the Missouri, reducing the amount of flow also decreases the river's capacity to assimilate pollutants. Instream flows also play a critical role in recharging aquifers that supply a wide variety of consumptive uses, including public drinking water.

In addition to the social and economic importance of instream flows to Montana, the state recognizes its responsibility in managing water resources, including the protection of public instream values. Indeed, the water policy of the state specifies that "the water resources of the state must be protected and conserved to assure adequate supplies for public recreational purposes and for the conservation of wildlife and aquatic life" (Section 85-1-101(5), MCA).

While instream uses of water have not always been formally recognized as beneficial, they have always been socially and ecologically valued. As the value of instream flows has increased, the state of Montana has responded by fine-tuning its legal and institutional systems to allow instream uses to be considered along with more traditional consumptive uses.

3. Goals and Objectives

The statutory policy goals for instream flow protection can be found in Section 85-1-101(5) MCA: "The water resources of the state must be protected and conserved to assure adequate supplies for public recreational purposes and for the conservation of wildlife and aquatic life." In addition, Section 75-5-101(1), MCA states that: "It is the public policy of this state to conserve water by protecting, maintaining, and improving the quality and potability of water for public water supplies, wildlife, fish and aquatic life, agriculture, industry, recreation, and other beneficial uses."

II. EXISTING POLICIES, PROGRAMS, AND PRACTICES

Several policies, programs, and practices are available in Montana to protect instream flows. These mechanisms, which range from a basin-wide water reservation process, to conditioning water rights permits, to managing reservoirs for instream flow purposes, vary in application and effectiveness. Together, however, they provide a relatively comprehensive, if uncoordinated, array of mechanisms to protect instream values.

1. Murphy Rights

In 1969, the Montana legislature enacted a law allowing the Montana Fish and Game Commission to file for water rights on the unappropriated waters of 12 "blue ribbon" streams in order to maintain stream flows necessary for the preservation of fish and wildlife habitat (Section 89-801(2), RCM 1947). The resulting appropriations, known as "Murphy rights" after the principal sponsor of the bill, have a priority over other uses only until the district court in which the streams are located determines that such waters are needed for a more beneficial use. Under this statutory authority, the Montana Department of Fish, Wildlife, and Parks has filed for appropriations on 12 "blue ribbon" streams in Montana, including Big Spring Creek, Blackfoot River, Flathead River, Gallatin River, Madison River, Missouri River, Rock Creek (Clark Fork), Smith River, Yellowstone River, and the Middle, South, and North Forks of the Flathead River.

While the Murphy rights legislation was repealed in 1973, the claimed appropriations remain valid. As of June, 1987, temporary preliminary decrees have been issued on Big Spring Creek, the Gallatin River, the Madison River, Rock Creek, the Yellowstone River, the Middle Fork of the Flathead River, and the South Fork of the Flathead River. Temporary preliminary decrees have not been issued on the Blackfoot River, the Missouri River, the Flathead River, the Smith River, or the North Fork of the Flathead River. To date, the appropriations have not been challenged in court by other water users.

Murphy rights are prospective in that they protect instream values from future consumptive appropriations. However, given their relatively junior status, they are ineffective in maintaining stream flows when there is not enough water to satisfy all water uses. In addition, since the statutory authority for Murphy rights is no longer applicable, and never was intended to be applicable to all streams within the state, it is a very limited, although valuable strategy for protecting instream values. If instream flows are to be protected in other parts of the state, additional strategies will have to be employed.

2. Water Reservations

In 1973, the Montana Water Use Act was enacted and set forth a systematic and comprenensive mechanism for the protection of instream values (Section 85-2-316, MCA). The law provides an opportunity to reserve water for future diversionary and consumptive uses as well as for maintaining stream flows for the protection of existing water rights, aquatic life, and water quality (Section 85-2-316(1), MCA).

Under the reservation statute, the state or any political subdivision of the state, including federal agencies, may apply to the Board of Natural Resources and Conservation to reserve water for both offstream uses as well as instream uses, including future irrigation, municipal growth, multipurpose storage, recreation, fish and wildlife, and maintenance of water quality. Applications must include a discussion of the purpose and an analysis of the need for the reservation, a quantification of the amount of water requested as well as the amount available, an analysis that the reservation is in the public interest, and a management plan (Administrative Rules of Montana 36.16.104).

Upon receiving a reservation application, the Department of Natural Resources and Conservation (DNRC) processes it through the procedures outlined in Sections 85-2-307 through 85-2-309, MCA. In general, the DNRC must publish the facts of the application in a newspaper of general circulation in the area affected by the proposed reservation. In addition, it must notify any water user, including federal agencies, that

may be affected by or interested in the proposed reservation. The DNRC may also notify other state departments and interest groups with an interest in the reservation.

After this notification process, the DNRC must accept objections, if any, to the proposed reservation (Section 85-2-308, MCA). Those objecting to the reservation must specify how it would adversely affect their water rights or other interests. If the DNRC determines that an objection is valid, it must then hold a public hearing (Section 85-2-309, MCA).

Once the objections have been resolved to the satisfaction of the Board, the Board may then adopt an order reserving water provided that the applicant has shown that:

1. there is a need for the reservation;
2. the amount of water requested is necessary for the stated purpose of the reservation;
3. the reservation is in the public interest;
4. special criteria are met if the use is to be out of state (Section 85-2-316(7) and (8), MCA).

Unless otherwise specified by the legislature, the priority date for a reservation is the date the Board adopts an order reserving water (Section 85-2-316(9), MCA).

Reservations are to be reviewed at least once every ten years, and if the objectives of the reservation are not being met, the Board may extend, revoke, or modify the reservation (Section 85-2-316(10), MCA). In addition to the ten-year review, the Board may also modify an instream flow reservation every five years. If the total amount of an instream flow reservation is not needed to fulfill its purpose, and an applicant can show that its need outweighs the need of the original reservant, the Board is allowed to reallocate the excess to another qualified reservant (Section 85-2-316(11), MCA). Reallocation may only take place once every five years, and the reallocation amount retains the original reservation priority date.

To date, instream flows have been reserved on approximately 69 stream segments in the Yellowstone River Basin. The 69 stream segments constitute a total of about 2,078 stream miles, or approximately 12.5 percent of the total stream miles in the state. Approximately 70 pecent of the average annual flow in the upper basin of the Yellowstone River has been reserved for instream flows, while between 58 and 66 percent of the average annual flow in the lower basin of the Yellowstone River has been reserved for instream flows.

In addition to the instream flows that have been reserved in the Yellowstone River Basin, applications are pending on about 25 stream segments in the Clark Fork River Basin in western Montana. If approved, these 25 segments will constitute a total of about 400 stream miles, or approximately 2.5 percent of the total stream miles in the state. Approximately 43 percent of the average annual flow in the Clark Fork River Basin would be reserved for instream flows. A basin-wide reservation process is also underway in the Missouri River watershed upstream from Fort Peck Dam, and may add significantly to waters reserved statewide for instream purposes.

While the reservation process provides a mechanism to evaluate the instream flow needs of a stream or watershed, to balance instream with future consumptive uses, and to legally protect needed instream flows, it is time-consuming, cumbersome, costly, and pits one type of water use against another. The reservation process also puts a greater burden of proof initially on the applicants when compared to water use permit applicants. However, once water is allocated under these two different systems, the burden on the permittee is greater since he/she must put water to a beneficial use within a few years, whereas the reservant has 20 to 30 years to put water to use (although they must show due diligence). The reservation process also requires an environmental impact statement when reserving large quantities of water for instream use. These requirements necessitate a significant amount of data, manpower, time, and money.

Another potential limitation of the reservation process is that it only sets priorities or preferences among types of use, and not among individual reservants. In times of water shortage, there is no way to administer priorities among individual water users. In addition, unlike the water use permits which are granted a priority as of the date of application, priority dates for reservations are not established until the applications have been approved, and the application preparation and review process can often take years. Meanwhile, consumptive water users are allowed to continue acquiring water use permits, thereby incrementally degrading instream values before they can be protected. (An exception to this statutory provision is the 1984 priority date established by the legislature for reservations in the Missouri River Basin, even though the reservation process is not expected to be completed until 1993.)

Reservations must also be reviewed at least once every ten years and may be modified at that time, thereby rendering them less secure than appropriations received under the water permitting process or consumptive use reservations that have been put to beneficial use. The Board may also reallocate water reserved for instream flows once every five years if a competing applicant can show that the total amount of an instream flow reservation is not needed to fulfill its purpose and that his need outweighs the need of the instream flow reservant (Section 85-2-316(11), MCA). In addition a reservation for an instream flow cannot exceed 50 percent of the average annual flow on gauged streams, and this may not be sufficient in all cases (Section 85-2-316(6), MCA).

In addition to the administrative and technical limitations of the reservation process, only a few public entities are using the reservation process to protect instream flows, including the state Department of Fish, Wildlife, and Parks, the state Department of Health and Environmental Sciences, the U.S. Bureau of Land Management, and the North Custer Conservation District. The U. S. Forest Service, the National Park Service, and the U. S. Fish and Wildlife Service, all managers of land areas possessing significant instream values, have not shown an interest in using the reservation process to protect instream flows on public lands.

Finally, the reservation process, like other prospective mechanisms to protect instream flows, is not capable of addressing situations where the primary threat to instream values is severe dewatering from senior consumptive water users or during a drought. What is needed in these cases is a mechanism to effectively put water back in the stream, rather than simply maintaining the status quo.

3. State Recreational Waterway Program

In 1972, the state Department of Fish, Wildlife, and Parks (DFWP) established a "State Recreational Waterway Program" through administrative rulemaking. The purposes of the program are: (1) to maintain and improve Montana's prime free-flowing and productive streams, (2) to improve other streams so they may be added to the system, and (3) to encourage and obtain multiple recreational attributes of streams in the system, with special emphasis on fishing.

The program extends the original blue-ribbon fisheries concept and identifies ten criteria for selecting streams, including: blue-ribbon fisheries, recreational potential, historic and scenic qualities, recreational economic opportunities, hunting areas, waterfowl habitat, freedom from pollution, adequate public access, stream protection potential, and popular request and interest.

Although the program is not legislated or specifically funded, it does provide a framework for identifying and prioritizing streams based on the values cited above. The Northwest Rivers Study (Graham, 1986), which encompasses the entire state, could serve as a data base for the program. In addition, the program could provide an additional mechanism for the protection of instream values by resolving issues related to the legal recognition of recreation as a beneficial use, public access, the protection of scenic corridors, and the authority to regulate incompatible uses and hydropower development. Adminstrative rules currently allow the DFWP to establish instream flows through the reservation process in order to protect the free-flowing conditions of the waterways.

To date, several stream segments have been included in the State Recreational Water System, including the Flathead River system above Flathead Lake and above Hungry Horse Reservoir, the Missouri River from Fort Benton to Fort Peck, Rock Creek near Missoula, the Smith River, and the Yellowstone River. The first two rivers mentioned have subsequently designated under the National Wild and Scenic River system, while the Yellowstone River has also received an instream flow reservation.

4. Northwest Power Planning Council Protected Areas

The Northwest Power Planning Act (16 USC 839b(h)(1)(A)) directs the Northwest Power Planning Council (NWPPC) to develop a "program to protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, on the Columbia River and its tributaries." In response to this direction, the NWPPC adopted the Pacific Northwest Hydro Assessment Study Work Plan, which was designed to designate protected areas on the basis of fish and wildlife values and to rank potential hydropower sites on the basis of fish and wildlife impacts (Northwest Power Planning Council, 1987). During the course of this study, it became apparent that the distinction between "protected areas" and "site ranking" was confusing, and in October, 1987, the staff of the NWPPC distributed an issue paper on "Protected Areas Designation" in which the site ranking language was largely dropped (Northwest Power Planning Council, 1987).

In place of the original site ranking concept, the NWPPC staff proposes the use of only two categories of sites: (1) sites which fall into high value fish and wildlife areas and therefore should be designated as unsuitable for development; and (2) sites which do not fall into the high resource value areas and therefore are potentially developable. The staff further recommends that the NWPPC develop rules to designate protected areas according to the following guidelines: (1) protect all areas currently used by anadromous (ocean-migrating) fish or potentially usable by anadromous fish in the Columbia River Basin; (2) protect all areas currently used by anadromous fish outside the Columbia River Basin; (3) protect high quality resident fish and wildlife areas both inside and outside the Columbia River Basin; and (4) provide for reevaluation of protected areas after basinwide planning is completed.

On April 14, 1988, the NWPPC unanimously voted to propose a ban on new hydroelectric dams on 40,000 miles of waterways throughout the Columbia River Basin in order to protect fish and wildlife habitat. The vote means a proposed amendment to the Columbia Basin Fish and Wildlife Program will be drafted and subject to public hearings. If finally adopted after those hearings, the amendment will be more than simply advisory. The Federal Energy Regulatory Commission, which licenses non-federal dams, is required by law to follow the NWPPC's guidance "to the fullest extent practicable." In addition, the Bonneville Power Administration (BPA) would be barred from buying power from offending dams or allowing their electricity into the BPA power grid. Although the protected areas would not result in water rights for the protection of instream flows, they would indirectly protect instream values by eliminating certan stream segments from hydropower development. However, it remains to be seen whether protected areas can legally maintain water flows necessary for fish and wildlife.

5. Conditioning Water Rights Permits

Another mechanism available to protect instream values is the application of "reasonable use" or "public interest" criteria for initial permit applications and for changes or transfers in appropriative rights (Section 85-2-311(2)(c), MCA). Where a person wishes to appropriate more than 4,000 acre-feet per year and 5.5 cubic feet per second, the applicant must show the projected uses to be reasonable, based on a consideration of:

1. The existing and future demands on the state water supply, including needs to preserve instream flows for aquatic life;

2. The benefits to the applicant and the state;

3. The effects on the quantity and quality of water for existing uses in the source of supply;

4. The availability and feasibility of using low-quality water for the purposes outlined in the application;

5. The effects on private property rights by the creation or contribution to saline seep; and

6. The probable significant adverse environmental impacts of the proposed water use (Section 85-2-311(2)(c), MCA).

In addition to outlining these criteria, the reasonable use statute clarifies the DNRC's authority to issue permits subject to terms, conditions, restrictions, and limitations considered necessary to satisfy these criteria. The statute also allows the state to condition appropriations for transport out of specified basins and all out-of-state transport of water. The reasonable use/public interest criteria can thus be used to condition certain appropriations to protect instream values.

While these reasonable use/public interest criteria are potentially useful in protecting instream flows, their real effectiveness is limited since they apply only to applications for very large amounts of water, and consequently they have not yet been applied to protect instream flows. Not only are there few water permit applications large enough to trigger these reasonable use/public interest criteria, but there may be cases where even a small new use can cause an unacceptable impact to instream values. In addition, the criteria do not take into consideration the cumulative impacts of consumptive uses on instream values in a given river. That is, several appropriations on a river, each less than the 4,000 acre-feet threshold, together may significantly reduce the flow in the river and thereby threaten instream values. However, since the permits fall below the 4,000 acre threshold, they are issued with few, if any, conditions to protect instream values. The criteria also do not relate the size of the application to the size of the river—i.e., an application for less than 4,000 acre-feet may be acceptable on a large stream but devastating to a small one. In addition, the criteria do not apply to all changes or transfers of water rights. Finally, even if the reasonable use/public interest criteria were applicable to more situations and considered the cumulative impacts of all water permits, they do not result in the acquisition of an instream water right per se. Moreover, there is some question as to whether the conditions are enforceable as against any future appropriators.

6. U. S. Forest Service Special Use Permitting Process

Another way to protect instream flows is to deny or condition access to developers seeking to divert water within the national forests. The right-of-way provisions of the Federal Land Policy and Management Act (43 U.S.C. 1761-1771 (1982)) grant discretionary authority to allow water works. If a diversion is permitted, the Forest Service has a duty to impose conditions that will protect the environment (43 U.S.C. 1765 (1982)). To date, the Forest Service in Montana has used this authority to protect instream values by conditioning land use permits for irrigaiton diversions, hydropower plants, and reservoir developments.

Regulating water diversions in this manner does not protect a watercourse as fully as would setting an instream flow. Diversons jeopardizing the streamflow level still can be made upstream from the national forests or on private inholdings within the forests; these diversions would be outside of the permitting process. Nevertheless, the Forest Service's authority to deny or condition future water diversions on national forests gives the agency considerable potential for protecting water resources. It is not unlikely that the Bureau of Land Management has similar authority.

In addition to denying or conditioning permits, federal land management agencies may also have the authority to set instream flows in the process of achieving the congressionally defined management purposes of the public lands (Wilkinson and Anderson, 1985). The Forest Service, and perhaps the Bureau of Land Management, the National Park Service, and the U.S. Fish and Wildlife Service, managing water much like any other resource pursuant to the agency's authority, would take action on a particular stream when its planning process showed a need to protect that resource. Delegated administrative authority to set instream flows may be a logical and essential aspect of the agency's authority to manage its lands.

7. Federal Reserved Water Rights

The federal reserved rights doctrine assures that Indian lands and public lands set aside or reserved by the United States for a particular purpose have adequate water. More specifically, the doctrine recognizes rights to a quantity of water sufficient to fulfill the specific purposes for which the land was reserved. Unlike other water rights, reserved water rights on federal and Indian land have a priority dating back to when the reservations were established, even if the actual use of reserved water begins long after other water users have appropriated water from the stream.

While the reserved rights doctrine provides that federal land management agencies have a legal right to enough water to satisfy the original purposes of the various reservations, such quantities may not always be sufficient to protect the most valuable instream benefits. This is especially true on lands administered by the U.S. Forest Service and the Bureau of Land Management (BLM). Although there has been a general recognition by the courts that reserved rights exist on national forest lands (United Stated v. New Mexico, 438 U.S. 696,98S.Ct.3012, 1978), the intent of the court decisions are not yet clear on the federal purposes and quantities of flow necessary to fulfill those purposes (United States v. Jesse, 744 P.2d 491, Colo., 1987). Since the public lands under the jurisdiction of the Bureau of Land Management were not withdrawn from the "public domain" when Congress passed the Federal Land Management and Policy Act, the statutory framework for the Bureau, one lower court has ruled that no water rights were reserved by the act's passage (Sierra Club v. Watt, 659 F.2d 203 D.C.Cir. 1981).

In contrast to these multiple-use resource management agencies, the National Park Service and the U.S. Fish and Wildlife Service are in a better position to protect instream values given the original purposes of their reservations of land (i.e., national parks and monuments and wildlife refuges). According to a Department of the Interior Solicitor's Opinion, the National Park Service may acquire reserved water rights for scenic, natural, and historic conservation uses, wildlife conservation,

and public enjoyment, while the U.S. Fish and Wildlife Service may claim reserved rights for purposes of protecting migratory birds and other wildlife (88 Interior Decisions 553, 1979).

In addition to the inherent limitations of the federal reserved rights doctrine as a mechanism to protect instream flows, there have been problems in quantifying and negotiating the flows required to protect various uses. Given the large volumes of water requested, along with the seniority of their priority dates, the issue is politically volatile, and final decisions are therefore slow in the making.

To date, all the federal land management agencies within Montana, including the Bureau of Land Management, along with the Indian tribes on the state's seven reservations, have claimed federal reserved water rights for a variety of purposes. The claims are currently under negotiation with the state's Reserved Water Rights Compact Commission, and may eventually provide another vehicle for protecting instream flows on federal and Indian lands. While instream flow rights have been asserted by the land management agencies, only the Confederated Salish and Kootenai tribes are likely to claim for instream flows. Under the Fort Peck Compact, the tribes and the state agreed to allocate a portion of the tribal reserved rights for consumptive uses to instream uses.

8. Wild and Scenic Rivers

The federal Wild and Scenic Rivers Act (16 U.S.C. 1271) was designed to preserve in a free-flowing condition certain rivers possessing outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, and other similar values. It provides a process by which rivers may be recommended for inclusion, studied, and eventually included in the wild and scenic rivers system. The Act prohibits the Federal Energy Regulatory Commission from licensing water projects on, or directly affecting rivers included in the system, and provides interim protection for rivers under study for inclusion.

The Wild and Scenic Rivers Act has been used, in effect, to protect instream values on four stream reaches in Montana - the North, South, and

Middle forks of the Flathead River, and on one reach on the Missouri River. The Act contains an express assertion of a federal reserved water right for the amount of water which is reasonably necessary for the preservation and protection of those features for which the rivers were designated (88 Interior Decisions 553, 1986).

In addition to the four stream reaches that have already been protected, the U. S. Forest Service is in the process of identifying eligible rivers for inclusion in the wild and scenic river system. To date, 15 river segments have been identified as eligible on five national forests in Montana, including the Bitteroot, Gallatin, Kootenai, and Custer national forests. These rivers constitute a total of 382 total stream miles, with two segments or 96 miles classified as scenic; nine segments of 179 miles classified as recreational; and four segments or 107 miles classified as wild and recreational (with 69 miles classified as recreational and 38 miles classified as wild). The forest plans that are currently in the draft stage will document the results of the eligibility study in the final forest plans. The national forests which have released final forest plans, including the Beaverhead, Flathead, Helena, Lewis and Clark, and Lolo national forests, are in the process of identifying eligible rivers and will incorporate the eligibility study in a future forest plan amendment. All the forest plans must provide for the protection of eligible river segments until a future decision is made on possible wild and scenic designation. A suitability study will be completed for each eligible river segment some time after the final forest plans are released.

9. Indian Treaty Fishing Rights

Another means of ensuring instream flows in Montana exists when Indian tribes have treaty fishing rights on a river. Interference with river flows by diversion, impoundment, or pollution of waters so that fish habitat is damaged may reduce the ability of tribes to take a meaningful share of fish as guaranteed in their treaties. A situation recently emerged in Montana where the Indian tribes claimed instream flows for the protection of fish under their treaty, as distinguished from a claim for a federal reserved right.

In the summer of 1986, the U.S. Bureau of Indian Affairs (BIA) established a minimum streamflow policy for the Flathead Reservation in northwest Montana. One of the effects of the policy was to diminish the water available for non-Indian irrigated agriculture. At the request of the irrigators, a federal district court in Montana granted a preliminary injunction prohibiting the BIA from implementing the policy protecting reserved water rights for tribal fisheries to the detriment of non-Indian irrigation (Joint Board of Control of the Flathead, Mission and Jocko Irrigation Districts v. United States of America and Confederated Salish and Kootenai Tribes of the Flathead Reservation (832 F.2d 1127 9th Cir 1987)).

The Ninth Circuit Court of Appeals dismissed the preliminary injunction and remanded the case to the district court on grounds that the district court erred in applying the principle of "just and equal distribution." This principle assumes that all who seek a right to the water stand on the same footing, notwithstanding the lack of an adjudicated decree establishing priorities among water right users. The injunction failed to accord the aboriginal fishing rights the protection federal law gives them against the claims and considerations of junior appropriators. Since the priority of the aboriginal fishing rights are dated time immemorial, they obviously predate all competing rights, and the district court erred in holding that water claimed under tribal aboriginal fishing rights must be shared with junior appropriators.

Since this case was appealed and has been remanded to the district court to determine the extent to which the tribes are entitled to instream flows under their treaty, it remains to be seen how effective this strategy will be in protecting instream values. Assuming that the district court rules consistent with the Court of Appeals decision and is favorable for the Indian tribes, the strategy is still somewhat limiting since it may apply only to Indian reservations.

10. The Public Trust Doctrine

The Montana Supreme Court applied the public trust doctrine, apparently for the first time, in two 1984 decisions: Montana Coalition

for Stream Access v. Hildreth (684 P.2d 1088 Mont. 1984); and Montana Coalition for Stream Access v. Curran (682 P.2d 163 Mont. 1984). The issue in both cases was the public's right to use water courses for recreational purposes, such as floating and fishing. The Court rejected arguments by private landowners that public recreational rights extend only to those watercourses whose beds are owned by the State of Montana; that is, only to those watercourses navigable under the federal test for title purposes. Instead, the court held that under the public trust doctrine, as derived from the Montana Constitution (Section 3(3)), the public has a right to use any surface waters capable of use for recreational purposes up to the high water marks without regard to streambed ownership, and may portage around private barriers in the water in the least intrusive manner possible. However, the Court also said that the public's right of access in such cases is subject to the prior appropriators right to use water for irrigation purposes.

In response to these cases, the legislature passed the "Stream Access" bill (Section 23-2-301 to 322, MCA) to clarify the rights of landowners and the public in implementing the Curran and Hildreth decisions. The statute provides that all surface water capable of recreational use may be so used by the public without regard to the ownership of the land underlying the waters. It also allows the public to portage around barriers on private lands in the least intrusive manner.

In Galt v. State (731 P.2d 912, 1987), the statute was challenged as an unconstitutional taking of private property without just compensation. While the district court upheld the statute and provided guarded summary judgment to the state, the Montana Supreme Court reversed the decision in part by holding as unconstitutional a few provisions which allowed uses not necessary to the public's utilization of water and which required the landowner to pay for the establishment of portage routes.

The significance of these decisions with respect to using the public trust doctrine to protect instream flows is difficult to assess. The issue before the court--the public's right to use waterways for recreation--does not raise a question regarding the duties or limitations

that may be imposed on the state or its permittees in the use of water resources. Thus, it remains to be seen whether the doctrine can be used for the protection of instream flows in Montana.

11. Reservoir Management

The construction, operation, and maintenance of reservoirs for hydroelectric power production and water storage may threaten instream values by increasing the uncertainty of river flows. In some cases it may also decrease uncertainty and facilitate instream flow protection by providing a more or less constant flow regime throughout the year. Several mechanisms have been applied in Montana to manage reservoir flows for fish and other instream uses. While some of these mechanisms require the consideration of fish and wildlife values in projects constructed by the federal government, as well as in those licensed by it, other mechanisms are pursued and established at the discretion of an administrative agency.

Two federal statutes have been used in Montana to condition water use permits. First, the state has used the Federal Power Act (16 U.S.C. 291) to condition hydropower licenses by requiring them to release a certain amount of flow at specified times to protect valuable fisheries. The 1986 Electric Consumers Protection Act amendments (P.L. 99-495) to the Federal Power Act, along with the regulations adopted pursuant to this act, requires the Federal Energy Regulatory Commission (FERC) to find that a proposed project is best adapted to a comprehensive plan for a waterway, including navigation, water power, and other beneficial public uses, such as recreation and fish and wildlife (16 U.S.C. 791(a)). To facilitate this objective, each license issued by FERC shall include conditions for the protection, mitigation, and enhancement of fish and wildlife affected by the development, operation, and management of the project (16 U.S.C. 803(j)). The conditions are to be based on recommendations received under the Fish and Wildlife Coordination Act from the U.S. Fish and Wildlife Service and state fish and wildlife agencies. If FERC believes that any recommendation is inconsistent with the purposes of the license, it must publish findings to that effect as well as specify conditions that satisfy

the requirement outlined above. The Montana Department of Fish, Wildlife, and Parks has submitted several recommendations to FERC for conditioning hydropower licenses to protect fish and wildlife resources. FERC generally incorporates these recommendations into the conditions for their hydropower licenses.

Second, the Pacific Northwest Electric Power Planning and Conservation Act (16 U.S.C. 839) contains significant requirements for preserving and restoring anadromous fish as well as resident fisheries. A regional council created by the act is directed to develop a plan for the protection, mitigation, and enhancement of fish and wildlife, and managers of federal power facilities are required to afford "equitable treatment" to fish and wildlife, insuring that their operations do not subordinate fish and wildlife to other project objectives. This strategy has been used by the Montana Department of Fish, Wildlife, and Parks to maintain resident fisheries on both the South Fork and the mainstem of the Flathead River below the Hungry Horse Dam by requiring a minimum flow release from the reservoir.

In addition to conditioning hydropower and other water projects, the State of Montana has also negotiated with reservoir operators, including the Corps of Engineers, the Bureau of Reclamation, the Montana Power Company, Washington Water Power Company, and state operators, for voluntary releases of water at several reservoirs to protect instream values. The majority of these agreements are usually written but informal. To date, agreements or management plans have been developed at six reservoirs, including Canyon Ferry, Yellowtail, Hebgen, Hauser, Holter, and Painted Rocks reservoirs. In addition, agreements are being negotiated at several other reservoirs.

In general, when the state enters into negotiations with reservoir operators, the operator typically maintains control of the flow releases but attempts to provide streamflows that will satisfy instream flow needs. The reservoir operator may also exercise options, such as buying power from other sources to insure minimum stream flows can be provided (this approach was taken by the Bureau of Reclamation at Canyon Ferry

Reservoir during the drought of 1987). In some cases, the Department of Fish, Wildlife, and Parks may prioritize its requests for streamflows in the event of inadequate water. For example, a lower summer flow than desired may be prescribed in order to save water for spawning fish in the fall. The outflow and reservoir levels may be discussed annually or more often if necessary. Advisory committees, such as the Canyon Ferry coordinating committee, including other water users and interested parties, are often consulted to convey information about present and future conditions affecting a reservoir operation and to reevaluate priorities.

Two of the more successful negotiated agreements have helped protect instream values on the Madison and Ruby rivers. The Madison River is one of Montana's best known trout streams. Located in the headwaters of the basin is Hebgen Dam, a privately-owned facility that partially regulates the river and is largely used for storage to enhance hydropower generation downstream. Although the project provides important benefits to the state, releases of water from the reservoir have historically had a deleterious impact on the river's fishery production. In search of a solution to this ongoing problem, personnel from the Montana Department of Fish, Wildlife, and Parks approached the Montana Power Company, owner of the facility. The parties were able to design a voluntary release pattern from the dam that substantially improved fishery habitat conditions in the river and, at the same time, preserved much of the owner's hydropower generation prerogative. Overwhelming public support for enhancing the fishery in the Madison River and the willing participation by the Montana Power Company were instrumental in the success of these negotiations.

As another example, the Ruby River, located in southwestern Montana near Dillon, has a valued trout fishery with regional significance. At the same time, flows in the river are heavily used for widespread irrigation in the basin. In fact, a state-owned water project on the river includes a 38,850 acre-foot reservoir with a delivery system that provides both full service and supplemental flows to about 40,000 acres of land. Currently, instream water rights have not been established on the river.

Early in the severe droughts of 1985 and 1987, irrigation diversions completely dried up a critical reach of the river. Recognizing the responsibility to preserve the important fishery resource, state agency officials briefed local water users about the situation and its consequences. In turn, it was agreed that additional water would be released on a short-term basis from the Ruby River Reservoir to satisfy both irrigation and instream flow needs downstream. Once again, public concern for protection of instream uses was important in the decision to increase reservoir releases. Equally significant, these increased instream flows were made possible even though much of the water involved may have been contractually committed to irrigation use. Nonetheless, the state and local water users negotiated an agreement to maintain instream values as well as protect irrigated agriculture. A more permanent solution to this potentially recurring problem is now being developed.

To complement efforts at negotiating voluntary releases from reservoirs to protect instream values, the state has also purchased reservoir storage on several occasions to protect important fisheries and recreational opportunities. This strategy was used on the Bitterroot River, a major trout and recreation stream that winds through the mountains of western Montana near the town of Hamilton. Over time, irrigation diversions along the river have increased to the point where they often seriously deplete the river and diminish the fish habitat and recreational floating opportunities. In the interests of developing a long-term solution to this recurring problem, state agency personnel have focused their attention on stored flows in the state-owned Painted Rocks Reservoir. Located in a headwaters tributary of the Bitterroot River, the reservoir was originally built for irrigation use that has not fully materialized. Thus, storage capacity is regularly purchased to augment low flows in the mainstem Bitterroot River. In the 1950s, 5,000 acre-feet were purchased with an additional 10,000 acre-feet purchased in 1983. During the summers of 1985, 1986, and 1987, water purchased by the Department of Fish, Wildlife, and Parks (DFWP) and released from Painted Rocks Reservoir for instream use was depleted by downstream irrigation users. As a result, several sections of the river were nearly dried up. After negotiations between the DFWP and the irrigation companies, a

petition was jointly submitted to the District Court. The Court, in turn, appointed a water commissioner in all three years to ensure delivery of the purchased water.

Water has also been purchased from Newland Creek Reservoir, a privately managed reservoir on a tributary to the Smith River to protect flows in the Smith River. Although there is little demand to purchase the water at this time, the operators want to limit the amount of water they sell to DFWP. This has not limited the ability to protect instream flows below the reservoir, however, since the morphology of the stream channel limits the amount of optimum discharge.

12. Adjudication Proceedings

Pursuant to Section 85-2-223, MCA, the Montana Department of Fish, Wildlife, and Parks may represent the public in adjudication proceedings for purposes of establishing any public recreational uses of water prior to 1973. This authorization has been used to apply for claims on several rivers and lakes, including the Bitterroot River, the Beaverhead River, and Bean Lake.

Several streams have received instream flow protection under this authority, including Tobacco River and Young Creek. In all these cases, a diversion was present. However, the only instream flow claim without a diversion that has entered adjudication to date is Bean Lake, and it has been challenged by several parties (Case 41u-7, Yellowstone Division of the Montana Water Courts, August 27, 1987). The Department of Fish, Wildlife, and Parks filed a claim in 1982 for an existing water right in Bean Lake, claiming recreational and fish and wildlife uses, with a priority date of 1951. In a recent decision, the court ruled that the claim is invalid because the Department of Fish, Wildlife, and Parks never diverted or impounded the lake water, and never demonstrated an intent to claim the water right or gave notice to other water users of that intent.

This decision has potentially signficant implications with respect to the use of this mechanism to protect instream values, and it is

currently on appeal to the Montana Supreme Court. While Section 85-2-223, MCA, states that the statute "shall not be construed in any manner as a legislative determination of whether or not a recreational use sought to be established prior to July 1, 1973, is or was a beneficial use," the Bean Lake decision found that recreation and fish and wildlife uses are beneficial uses. However, the Court did not find a valid right for instream use in this case because they did not find an intent to appropriate, notice to others, or a diversion. Nonetheless, the Department of Fish, Wildlife, and Parks argues the diversion requirement for a valid beneficial use is antithetical to instream flow protection and thus, not an appropriate indication of intent and notice.

13. De Facto Protection

In many cases, instream flows are protected by the delivery of large quantities of water to downstream users with senior water rights. The protection of instream flows in these situations, however, is not legally recognized, and may be lost by water transfers or other types of diversions. While this strategy is attractive in theory, it could only work in practice if water rights are adjudicated and then enforced voluntarily or by the timely appointment of and funding for water commissioners.

III. FLOW QUANTIFICATION METHODS

One of the most basic questions associated with protecting instream values is how much water should be retained in a streambed to maintain specific instream flow uses. To answer this question, technical experts must select a flow quantification method from an extensive list of available methods.

To date, the development of methods to quantify instream flow needs have centered on the requirements for fish, and to a lesser degree water quality. Very little effort has been devoted to the development of methods for quantifying instream flows for wildlife and riparian habitat,

recreation (although see Hyra, 1978), and aesthetics and scenic values. While some of these instream values may be protected by setting aside flows for fish, it is not a foregone conclusion that they are being sufficiently protected. In Montana, efforts to quantify instream flow needs have been associated primarily with the water reservation program, and have centered on the requirements for fish and water quality.

1. Flow Quantification Methods for Fish

The methodologies available to quantify instream flows for fish vary in sophistication and precision, ranging from simple visual judgments about the sufficiency of historical flows to elaborate computer models that can estimate the optimum flow for specific instream values. Trihey and Stalnaker (1985) have identified two general types of instream flow methods: standard setting methods and incremental methods. Standard setting methods identify minimum flow levels required to protect the instream value in question, while the incremental methods specify options or tradeoffs between various instream flow levels and the protection of instream values. The incremental methods are not designed to "set" minimum flows per se, but for "negotiating" flow regimes by quantifying flow-related trade-offs.

Standard setting methods can be further broken down into "nonfield" and "habitat retention" methods (Trihey and Stalnaker, 1985; Loar and Sale, 1981; Wesche and Rechard, 1980). Nonfield methods set minimum flows on the basis of existing historical streamflow records. For example, a flow level to protect aquatic habitat, and thus fish populations, is determined by calculating a minimum flow requirement as a percentage of the average annual flow for the stream in question. Thus, flow requirement decisions based on nonfield methods depend more on historical flow records than on field observations. While these techniques require minimal data, their speed and convenience are bought at the cost of accuracy and flexibility.

The second type of standard setting method, "habitat retention," includes a wide array of techniques that examine relationships between

discharge and generalized fish habitat indices to derive flow recommendations. They are called "habitat retention" methods because they specify flow levels where certain desirable aquatic habitat characteristics are retained. The methods require one or more visits to the stream or river where habitat measurements are made along established cross-sectional transects. Some methods employ hydraulic simulation models, while others rely on repetitive measurements made at several different flows.

The second major category of flow quantification methods, referred to as incremental methods, produce habitat-discharge relationships for specific life stages of various fish species. That is, they attempt to predict the actual amount of suitable fish habitat present as flow changes incrementally. While several incremental methods are available, the most thorough and widely used incremental method is the U.S. Fish and Wildlife Service's Instream Flow Incremental Method (IFIM). This method combines extensive data on seasonal and long-term streamflow variation, the habitat preferences of fish and aquatic wildlife, and geological and hydrological characteristics of streams to produce a computer model that quantifies the amount of physical habitat available along a given stream reach for any particular fish species, at any stage in its life history, at different levels and velocities of streamflow. Although this method is costly and time consuming, requiring extensive field work to collect data and a staff proficient in surveying techniques and computer modeling, it is sophisticated, repeatable, reliable, and flexible.

Given the controversial nature of instream flow protection, it is critical to select valid methods for estimating the amount of flow needed to protect fish and wildlife, recreation, and other benefits supported by free-flowing waters. While incremental methods are often considered the most scientifically and legally defensible, their use is not always warranted. No flow quantification method, either standard setting or incremental, is always superior or universally applicable. The selection and application of a flow quantification method should be viewed as a phased or staged process in which both standard setting and incremental methods are considered (Trihey, 1987:10). The principal benefits derived

from this hierarchical approach are minimizing the probability of overlooking an essential component of the instream flow assessment and implementing a complex and expensive field study or modeling effort without first determining that it is necessary.

Regardless of the instream value in question, standard setting or simple incremental methods are most appropriate whenever a proposed project or water allocation scenario has relatively benign impacts; is proposed on a stream segment where instream values are limited; or is not scheduled for implementation until several years into the future (Trihey, 1987:11). However, when the proposed project or water allocation scenario threatens to radically change the biological and physical characteristics of the stream channel, and raises technical questions concerning the impacts on existing and anticipated instream benefits, standard setting methods are of little help. What is needed is an incremental evaluation of the response of the instream values (fisheries, wildlife, recreational opportunities, water quality, and so on) to periodic or regular changes in streamflow patterns. The most appropriate analytical approach is incremental analysis using a variety of variables depending on the instream value in question.

The first and most essential step in selecting a flow quantification methodology is identifying the purpose for which instream flows should be set aside. In general, instream flow assessments are conducted for one of the following purposes: (1) to determine the minimum flow requirement for water allocation or water quality enforcement; (2) to determine seasonal stream flow requirements necessary to maintain, restore, or enhance a particular instream use; or (3) to evaluate the effects of proposed or existing water developments and to identify opportunities for mitigation, restoration, or enhancement of affected instream resources (Trihey, 1987:13). Each of these purposes can be pursued by selecting and applying a flow quantification method from the array of standard setting and incremental methods available and representing different levels of field work, biological data, and hydrologic analysis.

Once the purpose for which instream flows should be set aside is identified, the instream flow applicant must determine the minimum technical requirements of the analysis. These requirements should be based not only on the specific parameters of the instream flow value in question, but also on the likelihood of controversy over the instream flow recommendations and the degree of confidence that must be placed in the study results. Other variables that should be considered in the selection of a method to quantify instream flows include the availability of data as well as the availability of time, money, and manpower.

In light of these objectives and constraints, the Montana Department of Fish, Wildlife, and Parks (DFWP) has adopted a standard setting method, referred to as the "wetted perimeter" method, for quantifying instream flow needs. This method assumes that the carrying capacity of a stream is proportional to food production, which in turn is related to the distance along the bottom and sides of a stream channel in contact with water, or the "wetted perimeter." Based on this assumption, the method is designed to establish a threshold below which a streams food producing capacity begins to decline (the optimum instream flow level), and a threshold at which the loss becomes unacceptable (the minimum nnstream flow level). To date, the DFWP has used this method to quantify instream flow needs for fish in the Upper Clark Fork River Basin and the Missouri River Basin. A hydraulic simulation model was used to quantify instream flow requirements in the Yellowstone River Basin.

2. Flow Quantification Methods for Water Quality

Methods to quantify the instream flows necessary to protect and maintain water quality vary in complexity and precision. In general, they fall into two classes; those used for point source discharges, and those used for natural and nonpoint, or diffuse, sources of pollutants.

Predicting the stream flows necessary to assimilate pollutants from point source discharges is relatively straightforward. All such discharges must have a discharge permit. All discharge permits are based on a design flow for the wastewater treatment facility. For permitting

purposes, the design flow is generally an average daily flow which the treatment plant is designed to produce while still providing the intended level of wastewater treatment. The limits in a discharge permit are calculated to prevent violation of state water quality standards as long as the stream flow is greater than the lowest flow expected for seven consecutive days during any ten-year period.

Predicting the flows necessary to prevent water quality degradation from natural and diffuse sources of pollutants is not as simple as it is for point sources. These predictions usually must include a quantification of the amount of the inputs and the amount of potential dilution water. In addition, the timing of the inputs, the dilution water flows, and the respective locations must be determined. In some cases these relationships can be clarified using regression equations between flow and quality parameters at various locations throughout a basin.

Unfortunately, there usually is a shortage of stream discharge data as well as data on the quality parameters at the necessary locations. These locations are usually not apparent until a detailed analysis is attempted.

IV. PROBLEM STATEMENTS

Although Montana has made significant progress in protecting instream flows, there are several problems with the current approach. The problem statements listed below are derived from the discussion and analysis of existing policies, programs, and practices.

1. The current approach is fragmented, consisting of several strategies but no comprehensive or coordinated plan.

2. There has been little, if any, coordination between state and federal agencies in protecting instream flows.

3. There are several streams throughout Montana where instream values are threatened or impaired by a variety of land and water management practices.

4. Instream flow protections under prospective mechanisms do not protect values when streams are dewatered by senior consumptive appropriators or during periods of drought.

5. There is currently no clear legal or institutional mechanism to reclaim instream flows in basins that are being seriously dewatered. There is a need to "re-water" currently depleted streams as well as to prevent further dewatering.

6. Murphy Rights have a priority over other uses only until the district court in which the streams are located determines that such waters are needed for a more beneficial use.

7. The reservation process is data-intensive, time-consuming, and costly, thereby making it cumbersome and efficient only for very large river basins.

8. The reservation process only sets priorities or preferences among types of use, and not among individual reservants. In times of water shortage, there is no way to administer priorities among individual water users.

9. The priority date for reservations, with the exception of reservations in the Missouri River Basin, are not established until the applications are approved, and the application preparation and review process can often take years. Meanwhile, consumptive water users are allowed to continue acquiring water use permits, thereby incremetally degrading instream values.

10. During the 5- and 10-year review periods, instream flow reservations may be modified, thereby reducing the security of those reservations.

11. No more than 50 percent of the average annual streamflow can be for instream flows on streams with gages. In many acquired cases, this may not be sufficient to protect the instream values in question.

12. The State Recreational Waterway Program is not legislated or funded, and has been implemented only to a limited degree.

13. The reasonable use/public interest criteria apply only to water permit applications for very large amounts of water. The criteria are not applicable to smaller water projects and many changes or transfers in water rights that may threaten instream values; they do not relate the size of the application to the quantity of water available in a watercourse; and finally, they do not consider the cumulative impacts of water appropriations on an entire river basin.

14. Federal reserved water rights may not be sufficient to protect all the instream values on public lands. In addition, reserved rights negotiations are politically volatile and decisions slow in the making.

15. According to the Bean Lake decision, which is on appeal, recreation and fish and wildlife are beneficial uses to which the state may claim water rights prior to 1973, but were not considered valid water rights uses because of the lack of a diversion, an intent to appropriate, and notice to other appropriators.

16. It is very difficult to enforce instream flow claims in river basins that have not been adjudicated. In addition, water commissioners are often not appointed in time to avert a threat of injury or injury in fact to instream resources.

V. DISCUSSION OF OPTIONS

Although the state of Montana has made significant progress in protecting instream flows, the current approach is fragmented, consisting of several policies, programs, and practices but no comprehensive or integrative plan. Moreover, there has been little coordination between state and federal agencies in protecting instream flows. In light of these limitations, the state is in the process of developing a comprehensive, coordinated strategy for instream flow protection as part of the state water plan.

The following discussion of options to improve the protection of instream flows in Montana focuses on two basic issues: (1) developing a comprehensive and coordinated strategy to protect instream flows; and (2) refining existing mechanisms as well as developing new mechanisms to protect instream flows.

1. Develop a Comprehensive, Coordinated Strategy

Although it is possible to continue protecting instream flows according to a fragmented, piecemeal approach, the state water planning process provides an ideal opportunity to move from such an approach to a more comprehensive and coordinated strategy. Assuming that the development of such a strategy is desirable, it might include the following components.

First, in an effort to assess the instream flow needs and objectives of various agencies and organizations, an instream flow task force could be established. The purpose of the task force would be: (1) to inventory instream resource values statewide; (2) to identify stream reaches that are currently being dewatered; (3) to identify stream reaches where water can still be appropriated for instream flow uses; (4) to prioritize stream reaches needing protection; (5) to select and implement effective mechanisms for protection; (6) to monitor threats to instream values; (7) to ensure that protected flows are enforced; and (8) to ensure that protected flows are sufficient to maintain instream values.

The second component of a comprehensive, coordinated strategy for instream flow protection would be to adopt a conceptual framework for organizing the various mechanisms available or needed to protect instream values. Such a framework should be consistent with the three basic problems associated with instream flow protection, and should include the three following components: (1) conditioning new water use permits, changes and transfers of rights; (2) appropriating unappropriated water; and (3) acquiring senior water rights in dewatered streams. The discussion below on options to improve the mechanisms available or needed to protect instream flows is organized according to this conceptual framework.

The third and final component of a comprehensive, coordinated strategy for instream flow protection is to provide institutional and financial support to conduct research on: (1) the validation of instream flow quantification methods; and (2) the development of methods to quantify or at least better justify instream flows necessary to protect recreation, scenic and aesthetic values, and other instream benefits.

2. Condition New Water Use Permits and Changes or Transfers in Water Rights

One of the easiest and most efficient ways to protect instream values is to take them into consideration during the process of granting new water use permits and approving changes or transfers in water rights.

The effect of this type of mechanism is to condition new water permits and changes or transfers in water rights by requiring them to maintain a minimum level of flow in streams.

Although the state of Montana has reasonable use/public interest criteria that could be used to condition permits and changes or transfers, the criteria are only considered when an applicant wishes to appropriate more than 4,000 acre-feet per year and 5.5 cubic feet per second. To date, the criteria have not been applied to protect instream flows since no application has arisen that would trigger the criteria. In addition, the criteria are not applicable to smaller water projects or changes and transfers that may threaten instream values just as much as the larger projects and changes or transfers. Finally, the criteria do not relate the size of the application to the quantity of water available in a watercourse.

One way to improve the protection of instream values in Montana is to reduce or eliminate the water right application size that triggers the reasonable use/public interest criteria. In addition, the criteria could be applied to all changes and transfers of water rights. The reasonable use/public interest criteria may more effectively protect instream values if they were applicable to any proposed new water use permit or any change or transfer of water rights. An alternative is to relate the size of the water right application to the amount of water available in a stream, and apply the reasonable use/public interest criteria when the application is more than a given percent of the available flow. In addition, the criteria could be revised to consider the cumulative impacts of water appropriations on an entire river basin.

While conditioning new water use permits and changes or transfers in water rights may result in leaving a certain amount of water instream, there is some question as to the legal status of such a condition. While it is clear that such a condition does not establish a water right for instream use, it might have the same effect if it is enforceable as against any future appropriators. If the instream flow condition is not enforceable, it is likely to be relatively ineffective in protecting

instream values. Clarifying the legal status of these conditions may help improve the protection of instream flows in Montana.

3. Appropriate Unappropriated Water

Another means to protect instream values is to appropriate unappropriated water. The effect of this prospective action is to maintain the status quo and to prevent future appropriators from diverting water out of a stream below a minimum specified level. In Montana, the principal mechanism for appropriating water for instream use is the reservation process. While this process has been used to protect instream flows in the Yellowstone River Basin, and is being used in the Clark Fork River Basin as well as the Missouri River Basin to maintain instream flows, it might be improved in several ways. However, as with most water policy and management decisions, there are trade-offs with the various options for improvement.

One way to refine the water reservation statute is to streamline the entire application process, making it less data intensive, less time consuming, and therefore more consistent with the less complex water permitting process. However, while reducing the amount and detailed nature of the information required might improve the efficiency of the reservation process, it would also limit the ability of decision-makers to make rationally informed judgments. Given the long-term commitment of water resources appropriated through the reservation process, it is desirable to base such decisions on the best information available. In addition, a comprehensive technical data base may protect instream flow reservants during the periodic review by soundly establishing the need for the reservation.

Another way to potentially improve the water reservation process is to establish individual priority dates for reservations. Currently, the Board only sets priorities or preferences among types of use, and not among individual reservants. For example, in the Yellowstone River Basin, the priority of uses is as follows: municipalities; instream flows in the upper basin; irrigated agriculture; instream flows in the lower basin; and

finally offstream water storage. The problem with this system of establishing priorities is that in times of water shortage, there is no way to administer priorities among individual water users. While this problem has yet to arise in the Yellowstone River basin, it is not unlikely that it will become a problem in this and other river basins within the state. One way to resolve this issue before it becomes a problem is to simply establish priority dates for each individual water user, as is done in the water permitting process. Such a process could be built into and complement the current process of setting priorities or preferences among types of use.

In addition to establishing individual priority dates for reservations, the water reservation process might also be improved by establishing the priority dates for reservations at the time applications are filed (or at least when the first reservation application is submitted), rather than when the Board of Natural Resources and Conservation makes its final decision. Since the reservation process is very time-consuming, establishing individual priority dates at the time of application would create an earlier priority date for instream reservations and thereby increase the degree to which instream values would be protected in certain cases. In addition, it would protect the reservations from permits that are acquired while the reservation applications are being reviewed. Establishing the priority date at the time of application would also increase the certainty of the entire reservation process. If the priority date for reservations were established at the time of application, however, rather than when the Board makes a final decision, it would eliminate the Board's ability to take a comprehensive look at the competing demands within a given watershed, to assess trade-offs, and to establish priorities among water users. On the other hand, completing water uses are not scrutinized during the water permitting process.

Yet another way to potentially improve the water reservation statute with respect to instream flow protection is to somehow relax or eliminate the periodic review requirement. While the periodic review of all water reservations allows the state to determine if the reserved water is being

put to a beneficial use and to reevaluate water use allocation within a river basin, it does not provide much security to instream reservations or to non-developed consumptive use reservations. If the Board determines through either the five- or ten-year review process that the public interest would be better served by consumptive water uses rather than instream uses, instream flow reservants may lose their rights to use the water in question.

One way to increase the security of all reservations, including those for instream uses, is to only review those reservations that have not been perfected. This policy would not only dismiss perfected rights from being reviewed and potentially modified, but also subvert attempts at water speculation by reviewing and reallocating reservations that are not perfected. Instream flow reservations could be considered perfected once the rights are granted or when the reservant establishes an effective system for monitoring the flows. As an alternative, the ten-year review might be deleted, and the five-year reveiw maintained and clarified that the burden of proof for a change in a reservation is on the new applicant.

Finally, instream values might be better protected through a reservation if the current stipulation that no more than 50 percent of the average annual streamflow can be reserved for instream flows on streams with gauges is revised or eliminated (Section 85-2-316(6), MCA). This quantity of water may not be sufficient in all cases to protect fish, wildlife, recreation, and other instream values. An alternative is to allow instream reservations for as much water as is necessary to protect instream values. However, allowing applicants to reserve more than 50 percent of the average annual streamflow poses the risk of committing a large portion of the available flow in a basin to instream flow purposes, thereby eliminating opportunities for offstream, consumptive uses of water. Nevertheless, the Natural Resources and Conservation Board could be allowed to make its final decision on the basis of the entire record of the reservation proceedings. That is, the Board could simply make allocation decisions on the basis of the value of competing uses.

Since the water reservation process is prospective, acquiring junior rights to protect against future consumptive appropriators, it is ineffective in dealing with streams that are being seriously dewatered by senior consumptive appropriators or during periods of drought. In order to address the maintenance of instream values in these cases, additional mechanisms need to be developed to put water back in the dewatered streams.

4. Acquire Senior Water Rights

In order to put water back in streams that are being seriously dewatered, and consequently diminishing instream values, public entities should be allowed to acquire senior water rights. In Montana, there are two basic options to develop this mechanism: transfer consumptive senior water rights to instream uses, or apply the public trust doctrine.

A. Transfer Senior Water Rights

One strategy for protecting instream values that has not been applied in Montana, but may offer significant potential in dewatered streams, is to transfer senior water rights via purchase, lease, or gift from consumptive water users to the state or to other entities for instream flow purposes. This strategy might also be facilitated by increasing water use efficiency and conservation and, in turn, legally allocating the conserved flows to instream uses.

In certain circumstances, existing consumptive water rights might be sold voluntarily to a state agency, with the water normally depleted from the stream legally accruing to instream flows. As an alternative to the purchase of existing rights, agricultural water rights might be leased for instream purposes. Through this approach, an agricultural user would receive annual lease payments and continue to operate as usual until drought occurs and water for instream purposes becomes critical. During the drought period, and in accordance with the lease agreement, the irrigator would cease his normal water use and allow the flows involved to

remain instream. Even though the consumptive use would be curtailed, the irrigator would have been compensated with annual payments, for this loss and may be able to use the land involved for a non-irrigated crop.

While the transfer of water rights may allow the state to acquire senior rights for the protection of instream uses, there are currently several legal and motivational obstacles to realizing such transfers. Montana water law allows appropriative rights to be transferred provided that such transfers do not adversely affect the water rights of other persons, and the proposed use is a beneficial use (Section 85-2-402). However, the Bean Lake decision discussed above held that, among other reasons, a claim filed by the Department of Fish, Wildlife, and Parks for an existing water right for recreational and fish and wildlife purposes is invalid because of the lack of diversion facilities. Unless this decision is overturned by a higher court or the Legislature revokes the diversion requirement, the ability to transfer water from consumptive uses to instream uses is questionable.

In addition to simple transfers from senior consumptive water rights to instream uses, water use efficiency might also be encouraged or paid for by the state, with the conserved water being legally appropriated by a state agency for instream use. However, even if water salvaged from conservation measures could be voluntarily sold or otherwise transferred to a state agency with the water normally depleted from the stream legally accruing to instream flows, there is still the possibility that the right may be considered abandoned. There is little incentive to conserve water if it cannot be sold or otherwise transferred. In order to use this approach, water right abandonment statutes may have to be amended so that permanent or temporary transfers of conserved water would not result in the permanent loss of the right.

B. Apply the Public Trust Doctrine

Since the State of Montana has several legislative and administrative mechanisms available to protect instream values, the public trust doctrine is likely to be employed, if at all, only as a last resort

to protect the public's interest in instream flows. While the application of the public trust doctrine in Montana has been very limited, there are important precedents throughout the west that may lead to more specific applications with respect to protecting instream values.

Historically, the public trust doctrine protected the public's rights to use navigable waters for navigation, commerce, and fishing. Recent decisions, however, have expanded the protection to other water-related activities. These activities include hunting, swimming, rafting, boating, bathing, and even to preserve tidelands "in their natural state so they may serve as ecological units for scientific study, as open spaces, and as environments which provide food and habitat for birds and marine life, and which favorable affect the scenery and climate of the area" (National Audubon Society v. Superior Court of Alpine County, 189 Cal. Rept. 346 (1983)). In an effort to accommodate water use and the public trust doctrine, the court in the case cited above held that the state "has an affirmative duty to take the public trust into account in the planning and allocation of water resources, and to protect public trust uses whenever feasible." The court recommends that this balancing test be on a case-by-case basis.

While a similar approach in Montana would require a judicial decision, such a strategy may be important as a last resort to protecting valuable instream flows and the public's interest in free-flowing water. An alternative application of the public trust doctrine would be to encourage the state to finance water conservation measures with the salvaged flows allocated to the state to protect instream flows on behalf of the public trust (as mentioned above). This approach would get away from a strict taking of private property without compensation by allowing the parties to negotiate a solution that protects both the existing consumptive use rights as well as the public trust values. It also addresses proactively the type of situation in which the public trust doctrine might arise, rather than reacting after complaints are filed in court.

5. Adjudicate Water Rights and Appoint Water Commissioners

Instream values may be protected in certain cases by the delivery of large quantities of water to downstream users with senior water rights. Moreover, once instream flow rights have been established, by whatever mechanism, they are of little value unless enforced. However, it is very difficult to enforce water rights, instream flow or otherwise, unless they are adjudicated. Thus, the process of adjudication becomes a necessary condition for the protection of instream flows in Montana.

In certain cases, water rights, including instream flows, might be voluntarily enforced, depending on the relationships among water users in a given basin. However, the primary enforcement measure is through court-appointed water commissioners, which requires at least 15 percent of the water users to petition the court. However, from a practical perspective, landowners are often slow to petition the court to shut off their upstream neighbors. In the case of the Gallatin River in 1985, the stream went completely dry before the court was petitioned. These delays do not protect instream values because the fishery is lost before streamflows are returned, assuming any action occurs at all.

To timely appoint water commissioners in adjudicated basins, the state might consider using "trigger flows," or flows below which instream values become threatened. That is, once the stream flow falls below the amount set aside for instream flows, water commissioners would be appointed and require junior users to leave water instream. In basins that have not been adjudicated, but where instream flows have been legally established, court-appointed mediators might help resolve the discrepancy between priorities of use.

6. Summary of Options

This section briefly summarizes the major options related to improving the protection of instream flows in Montana.

A. Continue to protect instream flows according to a fragmented, piecemeal approach; or

Develop a comprehensive, coordinated strategy for instream flow protection, including a framework for identifying instream flow needs and selecting effective mechanisms for instream flow protection, as well as refining existing mechanisms and developing new mechanisms for instream flow protection.

B. Rely on the existing reasonable use/public interest criteria to protect instream flows; or

Modify the statute to allow the criteria to be applied to any proposed new water use permit and any change or transfer in water rights; or

Modify the statute by allowing the criteria to be applied on the bass of the size of the water right application relative to the amount of water available in the stream; or

Incorporate a provision into the criteria to consider the cumulative impacts of consumptive water appropriations on an entire river basin; and/or

Clarify the legal status of such conditions with respect to their enforceability as against any future appropriators.

C. Utilize the existing reservation process to appropriate unappropriated water for instream uses; or

Streamline the entire process, thereby making more applicable to smaller streams and river basins, by making it less time-consuming and data intensive; and/or

Establish priority dates for individual reservants, and/or

Establish priority dates for all reservations, including instream flow reservations, at the time applications are filed (or at least when the first reservation application is submitted); and/or

Consider instream flow reservations perfected upon Board approval; grant reservants a water right certificate, and do not require a review at either the five- or ten-year interval; or

Consider instream flow reservations exempt from the five- and ten-year reviews when efficient monitoring devices have been installed; or

Delete the ten-year review but keep the five-year review and clarify that the burden of proof is on the new applicant; and/or

Increase the percentage of average annual streamflow that may be protected on streams with gages; or

Eliminate the percentage concept altogether, and establish instream flows solely on the basis of need.

D. Develop legal and institutional mechanisms that allow and encourage public entities to purchase, lease, or otherwise transfer water rights from consumptive use to instream uses; and

Develop legal and institutional mechanisms to provide incentives for improving efficiency and conservation, and to allow the salvaged water to be legally allocated to instream uses; and

Develop legal and institutional mechanisms to allow for the temporary, emergency transfer of water rights to protect instream values in times of drought; or

Wait for someone to apply the public trust doctrine as a means of putting water back in to seriously dewatered streams.

E. Encourage the adjudication of water rights in unadjudicated river basins; and

Timely appoint water commissioners to resolve disputes over the priority of water uses; and/or

Encourage the court to timely appoint mediators in unadjudicated river basins to resolve disputes over the priority of water uses.

F. Allow research on the protection of instream flow needs to be completed on an ad hoc basis; or

Provide institutional and financial support to conduct research on the validation of instream flow quantification methods; and/or

The development of methods to quantify or at least better justify instream flows necessary to protect recreation, scenic and aesthetic values, and other instream benefits.

VI. TECHNICAL ADVISORY COMMITTEE RECOMMENDATIONS

The steps taken to protect instream resources in Montana have clearly been substantive and beneficial. Yet, in spite of all the successes, a number of problem areas remain to be addressed. Recognizing that the effort to date has been somewhat piecemeal, the instream flow technical advisory committee (see Appendix) recommends a more comprehensive, coordinated strategy for dealing with the issue. The recommended strategy provides a framework for identifying instream flow objectives, assessing the various mechanisms available to protect instream flows in a given situation, and then selecting the mechanism that will

most efficiently and effectively accomplish the objectives. It also recommends fine-tuning several of the existing mechanisms available for instream flow protection, as well as developing new mechanisms for acquiring senior water rights in seriously dewatered streams.

The instream flow technical advisory committee recommends the following actions be taken to improve the protection of instream values in Montana. The recommendations reflect a consensus agreement among experts in several agencies and organizations.

1. Establish an instream flow task force based on the existing instream flow technical advisory committee. The purpose of the task force would be to:

    * Inventory instream resource values statewide;

    * Identify stream reaches that are currently being dewatered;

    * Identify stream reaches where water can still be appropriated for instream flow uses;

    * Prioritize stream reaches needing protection;

    * Select and implement effective mechanisms for protection;

    * Monitor potential threats to instream values;

    * Monitor efforts to protect instream flows; and

    * Assess the effectiveness of existing mechanisms and established flow levels in protecting instream values.

2. Utilize the existing reasonable use/public interest criteria to condition new water use permits and changes or transfers in water rights, but make the following modifications in the statute:

    * Allow the reasonable use/public interest criteria to be applied to any proposed new water use permit and any change or transfer in water rights; or

    * Incorporate a provision into the reasonable use/public interest criteria to consider the cumulative impacts of consumptive water appropriations on an entire river basin.

3. Utilize the existing reservation process to appropriate unappropriated water for instream uses, but make the following modifications in the statute and rules:

* Establish priority dates for individual reservants; and

* Establish the "base" priority date for all reservants at the time the first application is submitted; and

* Consider instream flow reservations perfected upon Board approval; grant reservants a water rights certificate and do not require a review at either the five- or ten-year interval; or

* Delete the ten-year review but keep the five-year review and clarify that the burden of proof is on the new applicant; and

* Establish instream flow reservations on the basis of need. Do not limit instream flow reservations to 50 percent of the average annual streamflow on streams with gages.

4. Allow public entities to protect instream values in seriously dewatered streams by acquiring senior consumptive water rights. More specifically:

   * Develop legal and institutional mechanisms that allow and encourage public entities to purchase, lease, or otherwise transfer water rights from consumptive use to instream uses; and

   * Develop legal and institutional mechanisms to provide incentives for improving efficiency and conservation, and to allow the salvaged water to be legally allocated to instream uses; and

   * Develop legal and institutional mechanisms to allow for the temporary, emergency transfer of water rights to protect instream values in times of drought.

5. Provide institutional and financial support to conduct research on:

   * The validation of instream flow quanitification methods; and

   * The development of methods to quantify or at least better justify instream flows necessary to protect recreation, scenic and aesthetic values, and other instream benefits.

BIBLIOGRAPHY

Brooks, Rob, The Net Economic Value of Deer Hunting in Montana (Montana Department of Fish, Wildlife, and Parks, February, 1988).

Duffield, John, John Loomis, and Rob Brooks, The Net Economic Value of Fishing in Montana (Montana Department of Fish, Wildlife, and Parks, August, 1987).

Duffield, John, The Net Economic Value of Elk Hunting in Montana (Montana Department of Fish, Wildlife, and Parks, February, 1988).

Fritz, Gary, Pat Graham, and Gerhard Knudsen, "Public Rights in Water - A Montana Perspective, " in Proceedings of the 3rd Annual Western States Water Council Water Management Symposium (Los Angeles, CA, 1986): 97-107.

Graham, Patrick, Pacific Northwest Rivers Study: Assessment Guidelines for Montana (Montana Department of Fish, Wildlife, and Parks, Helena, MT, 1986).

Hyra, Ronald, Methods of Assessing Instream Flows for Recreation (Instream Flow Information Paper No. 6, FWS/OBS-78/34, 1978), U.S. Fish and Wildlife Service, Fort Collins, CO).

Loar, J.M. and M.J. Sale, "Analysis of Environmental Issues Related to Small-scale Hydroelectric Development: Instream Flow Needs for Fishery Resources," (Environmental Science Divison, Oak Ridge National Laboratory, Publication No. 1829, 1981).

Loomis, John and Joseph Cooper, The Net Economic Value of Antelope Hunting in Montana (Montana Department of Fish, Wildlife, and Parks, January, 1988).

Northwest Power Planning Council, Protected Areas Designation (Staff Issue Paper, October, 1987).

Trihey, E.W., Instream Flow Methods Workshop (presented by OEA Research and Trihey and Associates, Helena, MT February 24-26, 1987).

Trihey, E.W., and C.B. Stalnaker, "Evolution and Application of Instream Flow Methodology to Small Hydropower Development: An Overview of the Issues," in Proceedings of the Symposium on Small Hydropower and Fisheries (American Fisheries Society, Bethesda, MD, 1985): 176-183.

Wesche, T.A. and P.A. Rechard, "A Summary of Instream Flow Methods for Fisheries and RElated Research Needs," (Water Resources Institute, University of Wyoming, Laramie, WY, 1980): 122pp.

Wilkinson, Charles F. and H. Michael Anderson, "Land and Resource Planning in the National Forests," Oregon Law Review 64 (1985).

APPENDIX

Instream Flow Technical Advisory Council

Rick Devore
Reservoir Regulations Branch
U.S. Bureau of Reclamation
P.O. Box 36900
Billings MT 59107-6900

Jim Beaver, Land Use Specialist
Planning & Environmental Coordinating
Bureau of Land Management
P.O. Box 36800
Billings MT 59103
(406) 657-6815

Peter Bierbach, Hydrologist
Branch of Biological Resources
Bureau of Land Management
P.O. Box 36800
Billings MT 59103
(406) 657-6655

Anne Black
Northern Plains Resource Council
419 Stapleton Building
Billings MT 59101
(406) 248-1154

Stan Bradshaw, Attorney
Trout Unlimited
824 9th Avenue
Helena MT 59601
(406) 443-4171

Josephine Brunner, Executive Secretary
Montana Water Development Association
Route 1, Box 284
Power MT 59468
(406)467-2956

Gary Gregory
Chief of Resource Management
Glacier National Park
West Glacier MT 59936
(406) 888-5441

Lorents Grosfield, Chairman
Water Resources Committee
Montana Assoc of Conservation Districts
Melville Route
Big Timber MT 59011
(406) 932-4531

Jim Wysocki
City Manager, Bozeman
P.O. Box 640
Bozeman, MT 59715
(406) 586-3321

Gary Langley, Executive Director
Montana Mining Association
P.O. Box 132
Helena MT 59624

Clayton Matt
Box 278
Pablo MT 59855

Jim "Perry" Moore, Attorney at Law
Moore, O'Connell, Refling, & Moon
P.O. Box 1288
Bozeman MT 59715
(406) 587-5511

Rich Moy, Chief
Water Management Bureau
Water Resources Division
Dept of Natural Resources & Conservation
1520 East Sixth Avenue
Helena MT 59620
(406) 444-6637

Jerry Nypen
Greenfield Irrigation District
Route 1
Fairfield MT 59436
(406) 467-2533

Lauren Bahls
Water Quality Management Section
Water Quality Bureau
Environmental Sciences Division
Dept of Health & Environmental Sciences
Room A206, Cogswell Building
Helena MT 59620
(406) 444-5330

Marcia Rundle
Program Manager/Legal Counsel
Reserved Water Rights Compact Commission
Dept of Natural Resources & Conservation
1520 East Sixth Avenue
Helena MT 59620
(406) 444-6841

Ron Russell, Regional Hydrologist
Range, Air, Water, & Soil Ecology
USDA Forest Service
P.O. Box 7669
Missoula MT 59807
(406) 329-3233

Debbie Schmidt, Executive Director
Environmental Quality Council
Room 432, State Capitol
Helena MT 59620
(406) 444-3742

Gary Spaeth
Silesia MT 59080
(406) 962-3230

Liter Spence
Water Resources Supervisor
Fisheries Division
Dept of Fish, Wildlife, & Parks
1420 East Sixth Avenue
Helena MT 59620
(406) 444-2449

John Thorsen, Attorney at Law
Doney & Thorsen
314 North Last Chance Gulch
P.O. Box 1185
Helena MT 59624
(406) 443-7018

Dr. Bob White, Professor
Dept of Biology
Montana State University
Bozeman MT 59717
(406) 994-3491

AGRICULTURAL WATER USE EFFICIENCY

STATE WATER PLAN

Issue Paper Number 3

Water Resources Division
Department of Natural Resources and Conservation
Helena, Montana

May 20, 1988

TABLE OF CONTENTS

I. THE ISSUE

1. Goals and Objectives
2. Scope of the Issue
3. Significance of the Issue
4. Background

II. EXISTING POLICIES, PROGRAMS, AND PRACTICE

1. Policies
2. Programs
3. Practice

III. PROBLEM STATEMENT

IV. DISCUSSION OF OPTIONS

1. No Action
2. Education and Research
3. Positive Financial and Market Incentives
4. Conjunctive Use and "Physical Solutions"
5. Regulatory and Negative Incentives
6. Summary of Options

V. TAC RECOMMENDATIONS

VI. BIBLIOGRAPHY

"Waste not water, though a river be at your door."
Mohammed

"Nature never gives anything to anyone; everything is sold. It is only in the abstraction of ideals that choice comes without consequences."

Ralph Waldo Emerson

The Issue

Goals and Objectives

The general declaration of Montana's water policy, Sec. 85-1-101, MCA, begins thus:

> "The general welfare of the people of Montana, in view of the state's population growth and expanding economy, requires that water resources of the state be put to optimum beneficial use and not wasted.
> ...
> The development and utilization of water resources and the efficient, economic distribution thereof are vital to the people in order to protect existing uses and to assure adequate future supplies for domestic, industrial, agricultural, and other beneficial uses."

Two basic premises might be drawn from these far-sighted statements: 1) that Montana expects to grow and this growth will require additional water; and 2) that Montana's water resource is not infinite and the availability of additional water will ultimately depend on eliminating waste and increasing efficiency in the use and distribution of what we have. In other words, water is scarce, even in Montana. This is true both as a result of the limited physical supply and legal availability of water, and in terms of the growth of demands (many of which conflict) for the resource.

It is time to analyze our capabilities to deal with these premises. The place to begin this analysis is with the state's largest consumptive water user -- agriculture. This paper evaluates the potential of improving agricultural water use efficiency for the betterment of agriculture, other water users, and thus, all Montanans. It is not assumed that existing agricultural water uses have lots of room for improvement. Nor is some mathematical equation attempted by which Montana's agricultural water use efficiency can be quantified and summarily judged. Rather, this paper is a qualitative assessment of the opportunities for increased agricultural water use efficiency to improve the availability of water now and in the future. It also evaluates the adequacy of our water allocation institutions to provide incentives for and help distribute the water made available by greater effiency to those who want it, without heavy costs to farmers, fishermen, other water users, or the public interest. Finally, this paper seeks a strategy to achieve the agricultural water use efficiency appropriate to Montana water use and availability circumstances.

Scope of the Issue

1. Which agricultural water use?

Agricultural water use actually includes several distinct water uses. Dryland crops use a vast amount of diffuse water as it naturally becomes available as precipitation and soil moisture. Cropping patterns, tillage practices, and mulch applications may be improved to have a tremendous positive effect on the water use efficiency of dryland farming. Livestock watering is another important agricultural water use. The efficiency of livestock watering may be improved by measures that reduce evaporation, seepage, and adverse water quality effects. Because of time constraints and in order to give this paper sufficient focus, it will not address these water uses in any greater detail. Irrigation is the agricultural water use of concern in this paper, because it has by far the greatest role in affecting the state's agricultural water use efficiency in terms of allocable surface and groundwater resources.

2. What is efficiency?

If anything is clear from reading the literature and listening to discussions on this subject it is the dire need for some common understanding of "efficiency." This term is often employed because it seems more scientific and less vague than "conservation." Water use efficiency, however, is also enigmatic. Everyone seems to be in favor of increased efficiency, but agreement ends over just what it is and how to achieve it.

In physics, efficiency is a measurement of productivity in the use of some resource for some specific purpose, given other relevant factors in the production activity and a goal of minimizing waste. This concept of efficiency we apply to a specific, definable production process; maximum efficiency, in this context, depends upon the purpose, the other relevant factors, and what one considers waste.

Agricultural engineers apply this concept of efficiency to irrigation. In simplest terms, the goal is maximum long-term crop production, and more specifically, the purpose is to uniformly apply water to the crop's root zone at

the time the crop needs it. Efficiency is measured as a percentage--the amount of water productively used divided by the amount of water removed from the source of supply intended for irrigation purposes. This paper will refer to this concept of efficiency as "irrigation system efficiency".

The state's interest in irrigation system efficiency is limited to those situations in which low system efficiencies may have adverse effects to other water users or the environment, or contribute to something much less than the "optimal beneficial use" or "full utilization" of water resources. Until these circumstances are evident, system efficiencies are the business of private irrigators and irrigation project managers, who best understand the "other relevant factors" in the production activity. The state's role should be one of encouraging, educating, and providing incentives for appropriate improvements in irrigation system efficiencies unless low system efficiencies are causing public problems.

In economics, efficiency is a measurement of improvement in the allocation of goods and services between potential users. A "pareto-optimal" efficient allocation of the resource is one in which no one person can gain from a reallocation without a net cost to any other person -- the goal is not to maximize production of a given product, but to maximize utility from available resources. This concept of economic efficiency is of greater relevance to the state, as a measurement of the state's success in the distribution of water among water uses and users. To some extent, this definition also fulfills a societal goal of fairness in the allocation of a resource.

When lay-people use the term "efficiency," they usually mean some combination of the economic and physics definitions. Strictly speaking, however, economic and irrigation system efficiency may not be perfectly compatible, although they are not mutually exclusive, either. In both cases, we must remember that efficiency is a measurement, or a means; not the end, or the policy goal itself. Montanans desire that their water resources be used efficiently to maximize productivity in achieving individual purposes and to maximize its aggregate usefulness to the "whole" of the state. These are both valid policy goals, neither of which should be sacrificed for the other. Thus, both concepts of efficiency are needed in evaluating our achievement of these goals.

Unless more narrowly qualified by an "economic" or "system" modifier, "increased efficiency" in this paper means an improvement in the availability or the allocation of the resource, without detriment to either. An improvement in system efficiency at the expense of a less economically efficient distribution of water, or vice versa, is not considered to result in an increase in overall efficiency. From the state's perspective, increased efficiency results when more uses can be made of the water supply without hurting any existing uses.

Significance of the Issue

There are at least seven reasons that the state should be concerned about irrigation efficiency. The first four are significant water management opportunities while the last three are potentially major legal water management problems.

1. Increased irrigation efficiency provides the opportunity for additional economic development in areas where water may not otherwise be legally or physically available.

As previously stated, this is at the heart of Montana's water policy. In some areas of the state, for example the Milk River, the physical limits of the water supply are already exceeded by current demands. Other streams, such as the Musselshell River and the Clark Fork River, may be fully appropriated if not physically dewatered most years. The traditional approach to such water scarcity was construction of large government-financed water development projects, but this approach is much less viable today. Federal funding is tighter; construction and interest costs are higher; undeveloped sites are more scarce; and environmental concerns are of greater public importance. Such water development projects are not yet impossible to accomplish, but the difficulty is so high that the alternative of increasing the water supply by improving efficiency at the level of individual users becomes more attractive. As we approach the appropriation limits of the state's water supplies, water "freed up" through increased irrigation efficiency from the efforts of individual irrigators becomes the most feasible option for additional development.

2. Increased irrigation efficiency can increase irrigators' net income.

This result can happen in one of two ways. First, net farm income may be increased if the irrigator's investment cost is less than the combined economic benefits of increased crop production and any decrease in other farm operation costs, such as fertilizer or electrical pumping costs. This may result from an irrigator improving his irrigation management or technology with his own financing, or with a government subsidy to lower his investment cost.

Second, an irrigator could arrange to sell a portion of his water right that through improved technology or management is no longer needed. If the selling price for this water is higher than the investment cost of making it available, the irrigator's net income is increased.

3. Increased irrigation efficiency can improve the ability of current water users to withstand drought.

Under the Prior Appropriation Doctrine in dry years, the first priority water users may get all the water while many more get none. If the first few users became more efficient, the little bit of water available in dry years would go further among more water users.

4. Increased irrigation efficiency can have significant environmental benefits.

Several scenarios are possible with this result. Inefficient irrigation can contribute to soil erosion, saline seep, and nitrate and pesticide contamination of groundwater. In some instances, these problems can be solved or mitigated by changes in irrigation practices. Increased irrigation efficiency may also enhance instream flows, both in terms of quantity and quality. This, in turn, generally benefits fisheries, wildlife, and human recreation. Higher year-round instream flows also translate to lower water treatment costs to municipal water users of the stream, and may benefit other water users by allowing easier diversion and greater hydropower generation.

Increased irrigation system efficiency does not always benefit the environment, however. It can also aggravate salinity problems, lower groundwater levels, and result in lower quality and quantity late-summer, fall, and winter streamflows. The environmental effects of improving irrigation system efficiencies depend on a number of site-specific variables, for which information is often scarce or non-existent.

5. Increased irrigation efficiency may help meet both the existing needs of irrigators and prior reserved water rights of Indian tribes and the federal government once those rights are quantified and enforced.

In some parts of the state, federally reserved water rights pose a very serious challenge to water supply managers. These rights are legitimate. The only question is their amount and the extent to which they will be exercised. To affected non-reserved water right users, reserved water rights are seen as a threat to livelihoods. The accommodation of all water needs is more likely through the extension of the water supply by improved irrigation efficiencies.

6. Increased irrigation efficiencies may be an important factor in any court action challenging water appropriations on the basis of the public trust doctrine.

The Montana Supreme Court has recognized the existence of the public trust doctrine, at least in reference to public rights to the recreational use of Montana rivers and streams flowing across private property. It is conceivable that a group favoring public uses of a stream that has historically been severely dewatered in the exercise of legitimate water rights could bring suit against these water users or the state. While the legal outcome of this scenario is arguable, a state program to increase irrigation efficiency could potentially avoid such a suit. Moreover, a program to increase irrigation efficiencies would be evidence that the state is sincerely attempting to meet its responsibilities to the public interest.

7. Irrigation efficiency will be an important factor considered by the U.S. Supreme Court in any interstate equitable apportionment and in consideration of a state's interest in controlling water exports.

The U.S. Supreme Court has indicated that a state's conservation efforts will be considered in determining its share of interstate water; states with lower efficiency water uses may have to provide for their future needs by improving those efficiencies rather than from a larger share of interstate supplies. Wasteful or inefficient uses will not be protected. Colorado v. New Mexico, 459 U.S. 176, 184 (1982). The Court further stated, "[W]e have envoked equitable apportionment not only to require the reasonably efficient use of water, but also to impose on States an affirmative duty to take reasonable steps to conserve and augment the water supply of an interstate stream." Id. at 185. In superficial comparisons with other western states, Montana's water use efficiency statistics are not high, owing to the higher relative dependence of Montana irrigators on flood irrigation systems. While Montanans may recognize that these bald statistics don't provide the full story by not accounting for return flow and its benefits, the Supreme Court may not. A detailed explanation of Montana's irrigation efficiency situation will be necessary in any equitable apportionment proceeding. As a rule for interstate apportionment cases, however, "use it or lose it" is being qualified by "but conserve it or you don't deserve it".

The U.S. Supreme Court also has indicated that a state's attempts to restrict water exports may be constitutional if the restrictions are part of a water conservation program imposing comparable restrictions on both in-state and out-of-state use. Sporhase v. Nebraska, 458 U.S. 941 (1982). The statutory skeleton of such a program has been initiated in Montana, but in the absence of a broader encompassing, more active state water use efficiency program, the Court may question whether the state's motives for the leasing program are truly inspired by a concern for conservation. This case also raised the spectre that if the states do not act to control water problems of national significance (such as inefficient or wasteful uses), Congress could step in and assume responsibility for solving those problems.

Each of these seven reasons is probably a sufficient justification for the state to involve itself in an enterprise to improve irrigation efficiency. The assumption underlying each of them, however, is that increasing the system efficiency of all irrigators would yield substantial amounts of water for the state. As illustrated in the next section, this assumption is not always valid. Sometimes, however, the perception of a problem might be more important than the reality.

Background

1. About Irrigation

(a) Purpose and Definitions

Water is often the limiting natural resource affecting agricultural production. Inadequate water supplies limit plant growth and crop yields. Where water of a suitable quantity and quality is available, irrigation can supplement the natural water supply and fulfill a crop's water requirement. The purpose of irrigation is to fulfill a crop requirement, but not to exceed it. Overwatering can be as detrimental to crops as a water deficit because it can remove nutrients from the soil, contribute to crop disease and pest production, and create other nuisances detrimental to the agricultural operation.

A significant secondary purpose of irrigation is the removal of salts from the root zone. Salts accumulate and are concentrated in the soil as a chemical result of the movement and removal of water. Some soils are more prone to salt accumulation than others. In these cases, irrigators may need to supply extra water to drain through the root zone, leaching the salts from the soil as the water moves through. If the salts are not periodically leached from the root zone, the soil becomes unproductive. Where soil drainage is restricted, however, excess irrigation applications may cause the extra accumulation of salts, rather than their removal.

There are three fundamental aspects of irrigation: 1) the physical aspect of getting water from the source of supply to the edge of the field, 2) the physical aspect of uniformly applying the water to the crop root zone, and 3) the management aspect of optimally operating these systems on a schedule that meets a crop's water requirements. These are known, respectively, as off-farm conveyance, on-farm system, and water management components of irrigation.

The severance of water from its naturally occurring location is known as a "diversion." Diverted irrigation water is then conveyed to the crop by one or a combination of several different methods. Some of the diverted water may escape the conveyance system before it is delivered to the field. This is known as

"conveyance loss." The water applied to an irrigated field may leave that field by evaporation/transpiration (ET), surface runoff, or infiltration into the soil and percolation through the ground. The amount of water used by the crop or otherwise lost for reuse from the original source of supply is the amount of the "depletion". The major categories of depletion are crop ET, the ET of non-crop plants, and deep percolation to non-tributary ground water. The water that returns to the original source of supply over time through surface runoff and sub-surface water movement is known as return flow.

The sum of total depletions and total return flows is always equal to the total diversion. This is what is known as the irrigation water balance equation. Some variables in this equation, such as sub-surface return flows, deep percolation, and ET are difficult to measure and vary significantly by time of year and site. It should be remembered that most estimates of depletion and return flows in irrigation water balance equations are based on methods and equations derived from previous studies and carry some margin of error. Very few actual measurements of the disposition of irrigation diversions into depletions and return flows are made. A good deal is known about the factors that contribute to this distribution, however, and the water balance equation is an important concept in understanding irrigation system efficiency.

(b) Physical and Hydrologic Factors

Several physical factors affect the optimal amount of water diverted for each irrigation. Irrigation water is needed only when soil moisture is low. Applying irrigation water to fields that are already saturated with moisture serves no beneficial purpose, and, besides water, may be wasting energy and soil nutrients. The distance the water has to be conveyed and the leakiness of the conveyance system are the major factors in calculating conveyance losses. Obviously, a metal pipeline is less leaky than an earthen canal, and a clean earthen ditch composed of clay materials is less leaky than one choked with willows and constructed on pervious gravel. Field characteristics are also important, especially soil permeability and slope. Water that cannot quickly infiltrate the soil or that collects in a natural depression in the field is susceptible to evaporation. If soils are sandy or have too much slope, irrigation water can pass over or through the root zone too quickly. It may be

technically feasible for irrigators to overcome such natural obstacles, but it is often too expensive. The irrigator's only remaining alternative is to compensate for these problems by diverting extra water.

An important hydrologic effect of irrigation is to decrease the seasonal fluctuation of natural streamflows. Most irrigation diversions are made in the spring through late summer, depleting higher snow melt streamflows. Most return flows occur during the summer through winter, augmenting the seasonal decline in stream flows. In a sense, irrigation can make use of the soil as a short-term storage reservoir for downstream water needs, some of which might not be met by natural streamflows. Such return flows can be very important in drainages that do not have reservoirs. On the other hand, the quality, location, and timing of return flow water are limiting factors in the value of that water for consumptive reuse and instream flow purposes.

(c) Irrigation System Efficiency

The difficulty with measuring irrigation system efficiency is in identifying how much of the diversion has been productive, or at least not wasted. The portion of depletion attributable to crop ET is assumed to have been productive. Other contributions to total depletion are generally considered non-productive in terms of the irrigation purpose, and most agree that eliminating these non-productive depletions increases irrigation system efficiency.

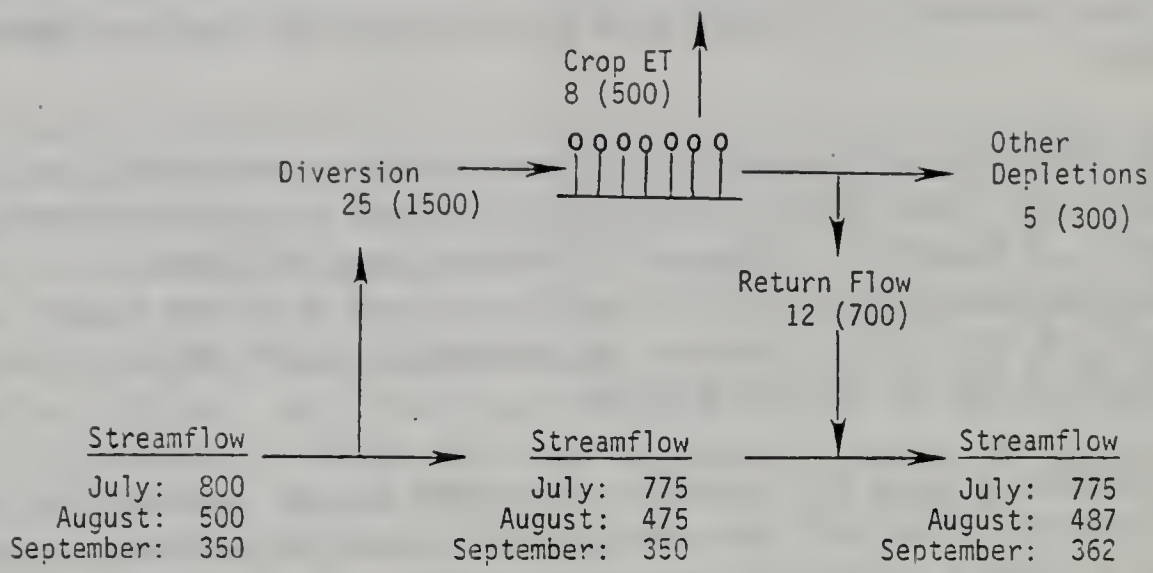
Return flows create some confusion in this context. If return flows have performed a useful service to the irrigator, such as salt leaching, they are usually considered as being on the productive side of the system efficiency equation. If the return flows are so polluted that there is no reuse value, should this amount of water be considered as wasted, and elimination thereof as an increase in system efficiency? Or should the volume of return flows simply not count in the calculation of system efficiency if reuse is viable? The answers to these questions depend on a multitude of site specific factors. When these factors are not known, the use of system efficiency statistics by themselves is of dubious value for purposes of comparing different irrigation circumstances. Further, they do not consider the economic efficiency of the resulting water distribution among multiple users. Still, an appreciation of

these statistics is essential to any discussion of irrigation efficiency since they are so widely used. Irrigation system efficiency statistics are useful tools when selectively applied to the specific situations that they are designed to reflect.

When people cite some irrigation efficiency statistic, they probably are referring to the volume of water used for crop ET divided by the volume of the diversion. In this paper, this is called the gross system efficiency. Effective system efficiency is defined as the sum of crop ET use and return flows divided by the total diversion. Net system efficiency is defined as the crop ET use divided by the total depletion.

An example is useful in illustrating the problems inherent in calculating system efficiencies and using these statistics for comparative purposes. Figures A through D represent the hypothetical efforts of one irrigator to increase his system's efficiency and the results to streamflow. For simplicity, it is assumed that the irrigator diverts water only in July and August and all return flows reenter the stream one month after the diversion. Amounts are expressed in cubic feet per second, except that those in parenthesis are acre-feet per month.

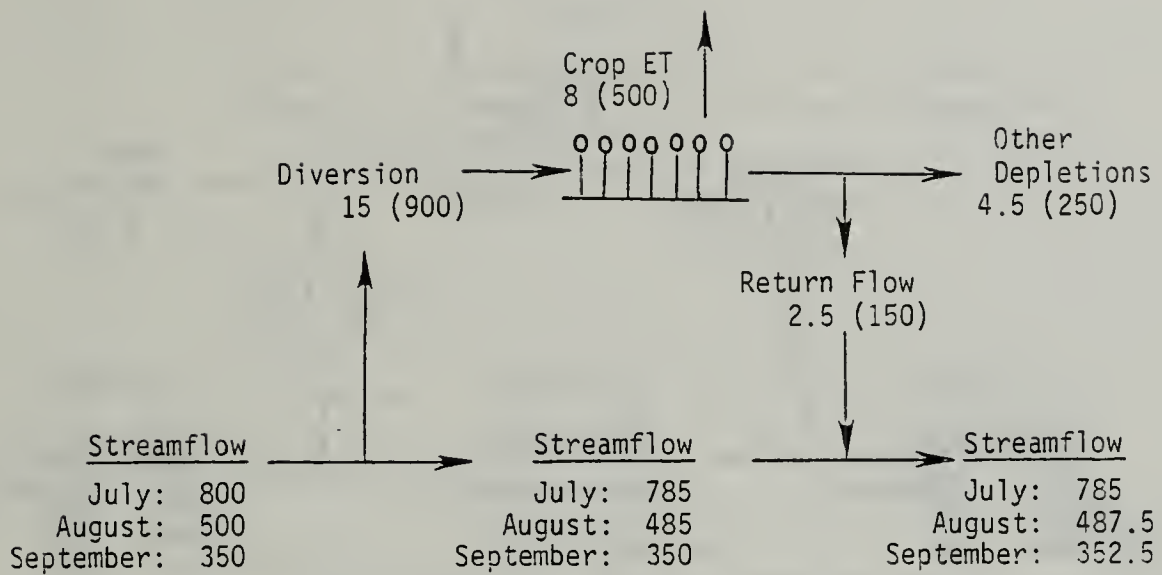
Figure A



Total Depletion: 800 acre-feet per month
Gross System Efficiency: 33.3%
Effective System Efficiency: 80.0%
Net System Efficiency: 62.5%

Figure A depicts the water use of an average irrigator, the disposition of his irrigation water, and its effect on streamflow. This irrigator's gross system efficiency is 33.3%, meaning the irrigator has to divert three times as much water as his crops will actually use. To the general public this figure may seem low, but compared to most flood irrigation projects (the most common type statewide) this is already a relatively high system efficiency, and may or may not be within the irrigator's power to improve. His soils may be so porous that little could be done to reduce the rate of soil percolation. Or the monetary value of the crop grown may be so low that while current irrigation practices may have a net benefit, any greater investment in these practices would not be worth the expense. Some of the depletion and return flows may also be attributable to the physical deterioration of the off-farm conveyance system, over which the individual irrigator often has little control. For the purposes of illustration, however, it is assumed that increasing the system efficiency of this irrigation practice is physically possible and economically feasible.

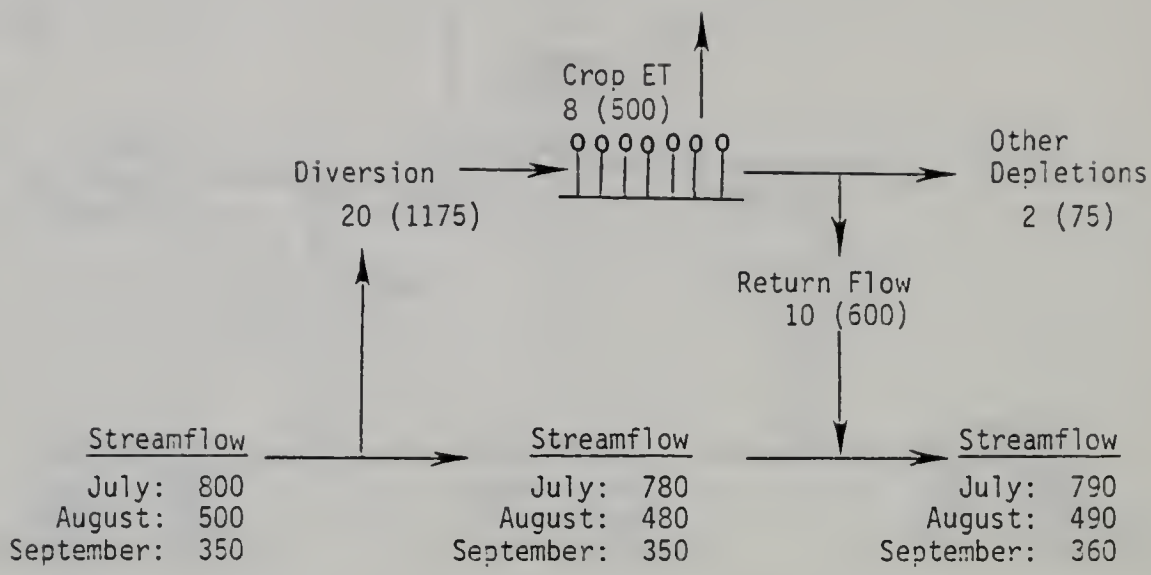
Figure B



Total Depletion: 750 acre-feet per month
Gross System Efficiency: 55.5%
Effective System Efficiency: 72.2%
Net System Efficiency: 66.6%

Figure B depicts the case in which the irrigator is able to divert less water by significantly reducing return flows but is less successful in salvaging non-crop ET depletions. A possible scenario is the conversion of a flood irrigation system to a sprinkler irrigation system. This allows the irrigator to substantially reduce diversion requirements and could have secondary benefits to aquatic life in the stream between the point the water is diverted and where return flows would reenter. If the return flows previously benefited downstream water users by augmenting late season streamflows, however, some of those benefits would now be lost. While the same amount of water may pass down the stream before and after the increase in system efficiency, more goes down the stream in the spring and less goes down the stream in the fall, when water is normally more scarce. Another variable is the existence of upstream reservoirs that regulate stream flow, which could render the downstream benefit of return flows insignificant because soil water storage is unnecessary.

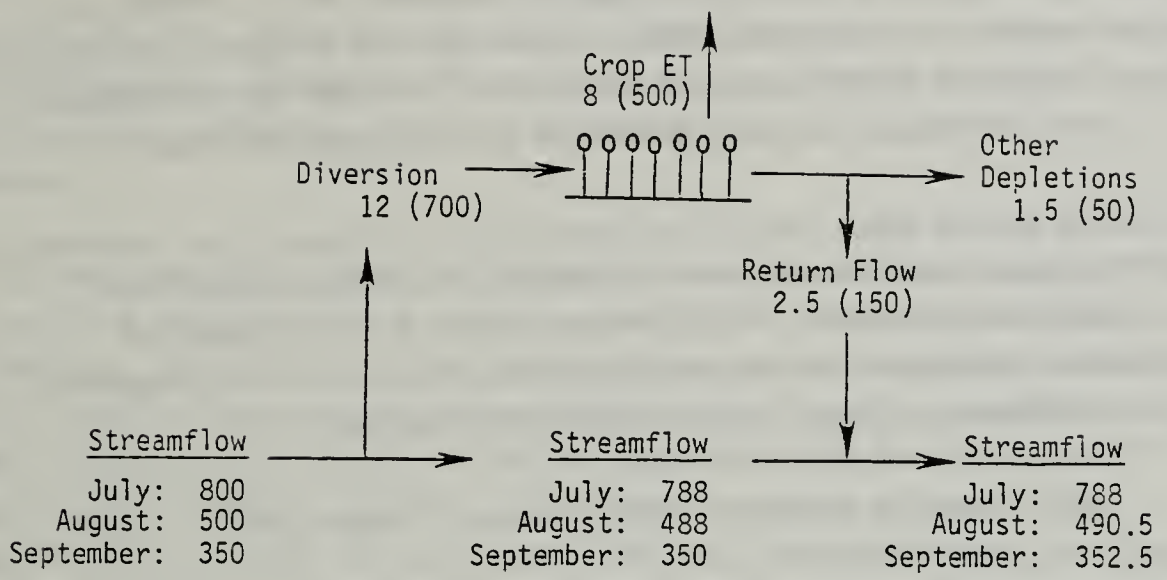
Figure C



Total Depletion: 575 acre-feet per month
Gross System Efficiency: 42.5%
Effective System Efficiency: 93.6%
Net System Efficiency: 86.9%

Figure C depicts the case in which the irrigator is able to reduce diversions by significantly reducing non-crop depletions but not return flows. Perhaps he accomplishes this by eliminating a problem of non-crop plant ET or, through improved scheduling, decreasing water loss to deep percolation. Yet he may have a high leaching requirement and continue to generate significant return flows in order to flush salts from the soil. While salt flushing may be beneficial to the irrigator, return flows may be so laden with salts or, if surface runoff, so high in temperature and turbidity that they have a deleterious effect on stream water quality and the fishery.

Figure D



Total Depletion: 550 acre-feet per month
Gross System Efficiency: 71.4%
Effective System Efficiency: 92.8%
Net System Efficiency: 90.9%

Figure D presents an optimal case to the irrigator from a system efficiency perspective. Even if one were to assume this near perfect water use possible, however, it may not be desirable. The effect of reducing return flows has been explained, but even non-crop depletions may have a public benefit. The depletions may be recharging aquifers that serve as a public water supply or contributing to the quality of wildlife habitat, such as wetlands.

It is obvious that system efficiency statistics do not take all of these factors into consideration. Their use is even more confusing if one considers that these statistics give mixed signals about when an improvement in system efficiency occurs and when it does not. For example, if one were to go by effective system efficiency statistics, the order of the most efficient irrigation systems among these examples is Figure C, D, A and B. Using gross system efficiency, the order would be Figure D, B, C and A. Using net system efficiency, the order would be Figures D, C, B and A. The differences in these orders reflect the differences in how these statistics treat return flows. Effective system efficiency treats return flows as beneficial. Gross system efficiency treats return flows as non-beneficial. Net system efficiency deals strictly with depletion; return flows are treated neither as beneficial nor non-beneficial. These statistics are most useful when selectively applied to

the specific factors in a particular irrigation practice; e.g., if there are downstream benefits from irrigation return flows, the use of effective system efficiency statistics is preferable to the others. If these specific factors are not known, the utility of these statistics is seriously diminished.

It should also be noted that in the hypothetical base case, Fig. A, there is almost 10 cfs more water in the stream in September below the return flow reentry point than in the most efficient system, Fig. D. This result is compounded when there are many irrigators. Return flows are a very important factor in consideration of basinwide economic efficiencies.

(d) Irrigation Efficiency from a Business Perspective

As stated earlier, there are three management aspects of irrigation: off-farm conveyance, on-farm system, and water management. Any increase in system efficiency will have to be accomplished in one of these areas. Each has limitations from a business perspective.

The physical condition of the off-farm conveyance system is frequently not the direct responsibility of individual irrigators. Rather, the irrigator may pay a fee for the use of this system which is supposed to cover its operation and maintenance costs. So long as the individual irrigators receive the water they ask for, they would like to keep costs as low as possible. Concerns about the delivery efficiency of the conveyance system begin at the point the system cannot meet the demand. For this reason, operation and maintenance are sometimes a bigger concern to irrigators lower on the ditch than to those at the head. If irrigators at the head of the ditch outnumber those at the end, conveyance efficiency, and the minority at the end of the ditch, may be sacrificed for the benefit of lower operation costs.

On the farm, irrigation is a very labor and capital intensive part of the overall farm or ranch operation. Improvements in the on-farm system can be very expensive since using excess water may cost a lot less, at least in the short term, than the capital investment required to improve the efficiency of the system, even if the value of increased crop production and decreases in other operation costs are factored in. It must also be remembered that traditional irrigation practices are deeply integrated into the overall farm or ranch

operation. Changes in the irrigation system will probably also require major changes to the rest of the farm operation. Often, improvements to on-farm irrigation systems come about only after a water supply problem develops, since increased system efficiency allows the irrigator to get by with smaller diversions.

The water management aspect of irrigation operations may also be beyond the irrigator's ability to entirely control, especially in scheduling irrigation applications. Essentially, irrigation scheduling requires irrigators to be able to apply water at the precise time the crops need it. Sometimes, irrigators are faced with a "use it or lose it" situation, especially when their source of supply is unregulated by reservoirs. In times of scarcity, irrigators are compelled to use water as it is available with less consideration for when their crops really need it. An engineer might consider an irrigation inefficient if it is made a day before a rainstorm, but weather forecasts are awfully risky for farmers and ranchers to rely on when water is readily available in the ditch. Businessmen tend to want to minimize their risk. The risk of applying a little too much water at the wrong time is generally preferred to the major risk of not having enough water at all.

2. Irrigation in Montana

(a) Irrigation Methods

There are three principle types of irrigation in Montana: water spreading, flood, and sprinkler. For the purposes of this paper, sub-irrigation by artificially elevated water tables is not included.

Water spreading is the diversion of flows by temporarily damming a natural watercourse so that it flows onto a field. This takes place primarily on small, intermittent streams as the opportunity presents itself. Water spreading does not ensure a crop's full supply of water and is also known as partial-service irrigation.

Full-service flood methods include row, contour ditch, and border-dike irrigation. Row irrigation is used only for row crops such as corn and beans. The most common type of row irrigation utilizes gated pipe or siphon tube to convey water from a ditch that passes through or along the edge of a field to each furrow. Contour ditch irrigation takes place on fields with gentle slopes. Ditches follow the contour of the highest parts of the field. Water in the ditch is obstructed, an outlet in the side of the ditch upstream of the obstruction is opened or dug, and the water drains out through it over the field below. Once the area below the outlet is saturated, the outlet is closed, the obstruction moved to another point on the ditch, and the process is repeated up or down the ditch until the entire field has been watered. Border-dike irrigation is similar to the contour ditch method, except that the field is flatter. Low earthen dikes are built up around and at regular intervals across the field. Water is then turned out into the areas between the dikes in sequence.

Sprinkler irrigation applies water to a crop through the air. Pressure is exerted upon the water to force it through a sprinkler nozzle. In some cases gravity may provide the pressure, but in most cases pumps are used. The advantage of sprinklers is greater uniformity of and control over water applications to the crop. Sprinkler irrigation systems include hand-set lines, wheel lines, traveling guns and pivots. From an engineering perspective, the principal differences between these are the way in which they are moved and distribute water across the field and the sizes of the nozzles.

(b) Water Use

The exact amount of water used statewide for irrigation varies significantly from year to year and has never been precisely measured. Several efforts have been made to quantify the number of irrigated acres in Montana from which some estimate of water use can be gained. Table 1, with its footnotes, describes some of these estimates. This paper assumes there are over 2,800,000 acres of historically irrigated land in Montana, some of which is only irrigated depending on water availability and good economic times for agriculture.

TABLE 1

Estimates of Irrigated Lands in Montana
(million acres)

SCS (1978)[1]	COA (1982)[2]	MDNRC (1986)[3]	MDOA (1987)[4]
2.6	2.06	2.89	1.6

[1] Soil Conservation Service, U.S. Department of Agriculture, Water Conservation and Salvage Report for Montana, 1978. This report used the DNRC land classification data and verified it with SCS field checks. The figure includes water spreading and estimated efficiencies with future projections on a county basis. This report counts acreages on which irrigation systems are in place or about to be put in place, and not just acreage actually irrigated in any one year.

[2] Bureau of the Census, U.S. Department of Commerce, 1982 Census of Agriculture: Montana, 1984. This estimate is derived from census surveys. It does not include water spreading. The amount represents acreages that were actually irrigated in 1982.

[3] Montana Department of Natural Resources and Conservation, Montana Water Use in 1980, 1986. The DNRC land classification data were used, with additional areas identified through the water right permit system. This estimate includes water spreading and could be considered a maximum of what could be irrigated in any given year. It may include some lands that have since been subdivided or, for other reasons, are no longer irrigated.

[4] Montana Department of Agriculture, Ag Statistics: 1987, 1987. This is the acreage for which irrigated crops were actually harvested in 1986. It does not include irrigated pasture or acreages for which irrigation was attempted but crops were not harvested.

About 350,000 acres in Montana are irrigated by water spreading. No recent figures exist separating the remaining 2.5 million irrigated acres into sprinkler and flood categories. While sprinkler-irrigated acreage grew rapidly in the last 15 years, best estimates suggest that it is probably less than 500,000 acres.

Using its own estimates of irrigated acres and applying the U.S. Soil Conservation Service (SCS) estimates of county-wide irrigation system efficiencies (SCS, 1978), the Montana Department of Natural Resources and Conservation (DNRC) reported the withdrawal of over 15 million acre-feet (ac-ft) of water for irrigation and the consumption of 3.2 million ac-ft in 1980. DNRC, 1986. By comparison, municipal uses ranked second among consumptive uses, withdrawing 157,000 ac-ft and consuming 58,000 ac-ft that year. A best estimate is that irrigation accounts for 97.6% of total statewide water withdrawals (diversions) and 96.4% of total statewide water consumption (excluding evaporation from reservoirs and, again, only in terms of allocable water). Stated another way, a 4% reduction of the water consumed through irrigation amounts to more water than the total of all other beneficial consumptive water uses combined. While these statistics may be in exact, it is safe to say that irrigation dwarfs all other consumptive uses of appropriated water in Montana.

While irrigation is by far the largest consumptive beneficial use of water in Montana, it pales in comparison to certain other uses. Another way to look at "consumption" is in terms of the amount rendered unavailable for other users. Water does not have to be depleted to be made unavailable. Specifically, water that is secured by downstream hydropower rights or instream flow reservations make water unavailable for upstream consumptive water users. Depletions attributed to irrigation are dwarfed by the annual hydropower use (73,984,000 acre-feet) and less than the instream flow reservation on the Yellowstone River alone (5,500,000 acre-feet). These instream uses may be highly efficient from the perspective of accomplishing their individual intended purposes, but like with irrigation, a high system efficiency of one use is not necessarily good for all water users in the state.

(c) Present Irrigation System Efficiencies

The best, though far from authoritative, source of information on the condition of Montana irrigation is the 1978 SCS "Salvage Report." SCS, 1978. Though 10 years old, no similar studies have been done with which to compares and evaluate it. Likely, system efficiencies are modestly higher now, owing to the growth of sprinkler irrigation. Like most technical studies on the subject, this report separates "on-farm" and "off-farm" statistics. Here are some selected quotations from this report:

> Only 34% of the irrigated lands [in Montana] have adequate off-farm conveyance systems. (Page 8.)
>
> Today's conveyance systems deliver only one-half of the diverted water to the farms due to conveyance losses. (Page 8.)
>
> Nearly one-half of the irrigated lands need improved off-farm return systems to provide outlets for surface and drainage waters. (Page 8.)
>
> Only one-quarter of the irrigated lands in Montana have adequate on-farm irrigation systems, and only one-half of these obtain good irrigation water management. (Page 8.)
>
> Only five inches of every twelve inches of water delivered to the farm are being used by crops. (Page 9.)
>
> Today only one irrigated acre in ten has an adequate water supply, conveyance system, on-farm system, and return system and receives good water management. (Page 9.)
>
> Today about 4.9 acre-feet are diverted for every acre-foot used by crops. (Page 9.)

Since Montana irrigation is predominantly of the flood variety, and because flood techniques generally require larger diversions than sprinkler systems to water the same crop, there may be a tendency to characterize irrigation in Montana as having much room for efficiency improvement. As described earlier, such a characterization is overly simplistic. Additional information on individual Montana irrigation systems and practices are necessary, especially as they relate to other basin factors.

(d) Economic Value

There are about 23,600 farms and ranches in this state, using 61,000,000 acres of land. Forty percent of the farms have some irrigated land, but irrigated land accounts for less than 5% of farm and ranch land. From these comparatively few irrigated acres, however, come roughly 25% of total agricultural receipts (derived from Montana Dept. of Agriculture, 1987).

The most important irrigated crop in Montana in terms of both acreage and economic value may come as a surprise; it is hay. Between 75 and 80% of all irrigated land in Montana is in irrigated hay and pasture. Small grains account for between 15 and 17%; sugarbeets, corn, beans, and potatoes together account for between 5 and 8%; and all other crops constitute less than 2%.

Irrigation in Montana is more important to livestock production than to farming. The size of our cattle industry depends on the availability of feed year-round. In spring, summer, and fall, most of the state's cattle are grazed on rangeland and pasture (some 500,000 acres of which are irrigated). Back in 1886-7, however, it was proven that supplemental feed was needed to sustain the industry during severe winters. The lack of feed that winter caused the loss of 60% of Montana's range cattle. The importance of putting up hay for winter feed has not been lost on the cattle industry since then, and irrigation has become integral to ranching.

From 1977 to 1986, 53% of Montana's harvested haylands were irrigated, and irrigated haylands produced 68% of the state's hay. Over this same period, an acre of irrigated hayland produced an average of 2.4 tons of hay, while an unirrigated acre produced only 1.2 tons. If all haylands were unirrigated, the state could produce only two-thirds as much hay. One could assume that without irrigation, Montana's cattle industry would be one-third smaller. In dry years, irrigation's importance is even greater. As devastating as 1985 was to cattle producers, without irrigation they would have had less than half of the little hay they produced that year and would have had to sell off much more of their herds.

Barley, wheat, and corn, respectively, rank next behind hay as the leading crops in terms of irrigated acreage. Table 2 provides some statistics regarding the contribution of irrigation to grain farming over the last ten years. As with the cattle industry, these averages do little to indicate the value of irrigation to grain farmers and their communities in dry years.

Almost all of the state's sugarbeet, corn, bean, and potato crops are irrigated. Since 1980, cash receipts from sugarbeets, potatoes, and beans averaged $32,255,000, $11,833,000, and $2,371,000 per year respectively, for a total of $46,459,000 per year. Most of Montana's corn crop is irrigated, but its economic value to the state is harder to quantify since it is produced primarily for silage.

TABLE 2

Irrigation's Effect on Grain Farming Industry*
(Averages for the last ten years)

Crop	Irrigated Acres	Irrigated Acres As % of Total Acres Harvested	Irrigated Prod. As % of Total Prod.	Yield per Irrigated Acre (bu)	Yield per Unirrigated Acre (bu)
Winter Wheat	17,200	<1%	1.5%	54.2	29.2
Spring Wheat	82,400	3.3	8.2	53.5	22.2
Barley	210,030	13.7	23.8	65.6	33.7
Oats	26,350	22.5	33.7	65.8	35.7

*Derived from Montana Agricultural Statistics, 1987, Montana Department of Agriculture, October, 1987.

If irrigation sustains one-third of the livestock industry and contributes 8% of cash receipts from field crops, then it contributes about 25% of agricultural cash receipts. Traditionally, agriculture earns about one-third of the total cash receipts from primary industries in Montana, distributed fairly equally between farming and ranching. Extrapolating further, one could assert that irrigation sustains 8% of the total gross economic production of the state's primary industries, which includes agriculture, oil and gas, travel and tourism, mining, lumber, and value-added manufacturing. Irrigation's value in stabilizing the fluctuations the agricultural industry undergoes as a result of bad weather is inestimable. It is also a fact that, in some regions of the state, local economies are so heavily dependent on irrigation that communities might die, or never have existed, without it.

3. Summary

Irrigation is by far the largest consumptive water user in Montana and, from outward appearances, there is the potential to "free up" significant amounts of water by increasing efficiencies. "From outward appearances" is the operative phrase, however. Increased irrigation efficiency may sound easy enough to academics and policy makers, but in reality, it's far more complicated and difficult than it seems.

A parallel is often drawn between what conservation has accomplished in terms of expanding energy resources and what conservation could accomplish for water resources. There is one major difference between water use and energy use that makes this analogy questionable, however. With energy, seldom are there benefits to the public or other energy users from the diffuse heat that is "lost" in the initial intended use. It simply dissipates into the atmosphere. With water, that which is "lost" in one use is usually recaptured for another use. In fact, the second use may depend on the particular manner of the initial "loss". Reuse is a much more important factor in water use efficiency than with energy use efficiency, even though the reuse of water is inadvertent and unknown to the user.

The specific factors involved in each irrigation situation must be understood before a judgment is warranted about the feasibility of increasing efficiency. An inflexible, statewide, mandatory program for increasing all irrigators' system efficiencies could perhaps detrimentally affect a very important and stabilizing sector of Montana's economy. Furthermore, it could aggravate, rather than improve, some local water availability and environmental problems. A statewide approach must be flexible enough to deal with each case individually.

Nevertheless, increased irrigation efficiency, under the right specific conditions, could provide major benefits to the state. The next part of this paper evaluates the state's present position with respect to pursuing these opportunities and avoiding the potentially major legal problems of doing nothing.

Existing Policies, Programs, and Practice

Policies

To understand Montana's water policies regarding water use efficiency, one must understand the history of Montana water law. The right to use water in Montana, as in the rest of the west, is a government-sanctioned, legally protected private property right. From Montana's earliest territorial days until July, 1973, the acquisition of such a right required only the posting of a local notice and the actual appropriation and beneficial application of the water. The relative priority of the right as between users was determined by that which was used first. The amount of the use-right is limited to that which was reasonably necessary to accomplish the purpose of the use. Until 1973, the state's role in administering this system was the responsibility of its courts, except in protecting those rights in which the state secured its own proprietary interest, and beginning in 1962, permitting certain groundwater appropriations. Through the revision of its constitution in 1972, Montana became the last western state to require a centralized system of state water rights records. It was not really until this time that the state became involved in the comprehensive management, and not just the development, of the state's water resources. In 1973, the Montana Water Use Act was passed by the legislature, repealing most water appropriation statutory law, imposing a new permit system by which state approval would be required for new appropriations, and requiring the adjudication of all water rights existing prior to 1973.

Most of the appropriations in Montana are protected by pre-1973 water laws. The law governing the exercise of these private rights is largely the result of court adjudications driven by conflicts between private parties. The de facto public water policy of the state until that time was that water should be freely used by individuals in ways that would further the settlement and economic development of the state. For individuals to make the investments needed to generate wealth from the land and water, they needed the security of private ownership of these resources, subject only to those rules necessary to avoid conflict between the property owners. The legacy of this successful western water resources policy is constitutionally protected vested rights.

As society evolved, the public values in the resource took on greater political significance, and a conflict emerged. It is now clear that public interests in water management must be protected. But even in those instances where the public interest may outweigh private rights, it is unlikely that policy makers or even the courts would allow those rights to be taken without compensation. It is essential, therefore, that the means by which the state encourages water use efficiency reflect this consideration. Unless policy makers are willing to pursue a statewide strategy of water rights condemnation, improved efficiency in the allocation of water must be motivated primarily by economic, rather than legal, initiative. The question becomes the range in which the law allows economic incentives for such initiative to operate.

A number of Montana water development projects for irrigation were sponsored and subsidized by the government, to whom the actual water rights for these large projects sometimes vested. Irrigation districts and water users associations were organized under state law for two reasons: to provide the actual operation and maintenance of the project facilities and water, and to assume responsibility for the repayment of any government investments in the projects. To describe the history of state and federal water development in Montana and the incorporation of irrigation districts is beyond the scope of this paper. Suffice it to say that these projects and districts control a very large amount of irrigation water in Montana, and this water is allocated by a different system than that governing private water appropriations. Thus, the incentives for water use efficiency may need to be different for water users in these districts than for private appropriators.

1. Montana Water Rights

The fundamental concepts defining Montana water rights are "prior appropriation" and "beneficial use." The Prior Appropriation Doctrine is a theory of water allocation on the basis that the first to use water has from that time on a right to that water enforceable against any who come later. This system does not consider the value of the first use in relation to subsequent uses, unlike market systems of resource allocation. There was no "initial owner" setting a price from whom the water could be purchased. The first in time is first in right. Furthermore, even if one is not the first

person with a water right from the source of supply, that person assumes a legal interest in the continuation of the conditions of the supply at the time of the initial appropriation, including the pattern of use and beneficial effects of prior appropriators.

Under Montana law, a water right is not actually created until the water is appropriated for some useful and beneficial purpose. Quigley, et al v. McIntosh, et al, 110 Mont. 495 (1940); Sec. 85-2-401, MCA. As defined by the Montana Water Use Act, to "appropriate" is "to divert, impound, or withdraw (including by stock for stock water) a quantity of water or, in the case of a public agency, to reserve water in accordance with 85-2-316." 85-2-102(1), MCA. Thus, it could be assumed that for new permits there must be some physical control over the water to "appropriate," except through the water reservation process.* It is a matter of dispute whether instream flow protection can be afforded through the water permit system or, as will be explained later, through the change and transfer of water rights. However, water law in existence at the time of passage of the Water Use Act may have allowed for non-diversionary water rights, which would now be protected by the Constitution. See Paradise Rainbow v. Fish and Game Commission, 148 Mont. 412,421 P.2d 717 (1966).

Water diverted for a beneficial purpose is not beneficially used if the size or manner of the appropriation of water is unreasonable or improper, as measured by the generally accepted customs and common usage in the locality. "An irrigator may employ any means of diversion best suited to the existing physical conditions, and all the circumstances of the case, though undoubtedly he will be

---

*Some argue that "withdraw" could be considered withdrawal for instream flow purposes. The DNRC has not accepted this interpretation, holding that the term refers specifically to stock watering, which does not exactly require a diversion. The matter of whether a diversion or impoundment is required for a pre-1973 appropriative water right is currently one issue before the Montana Supreme Court in the Bean Lake case, which the court may or may not address. DNRC has denied a private permit request for instream flow use, although the decision was very fact-specific. In the Matter of the Application for Beneficial Water Use Permit No. 35527-S41 H by Glen H. and Lyla E. Lehrer, p. 1.2 (1984). The matter has not been decided per se.

required to employ reasonably economical means, so as to prevent unnecessary waste." State ex rel Crowley v. District Court, 108 Mont. 103 (1939). The means of diversion and use must be reasonable, which means reasonably efficient but not impossibly so. An appropriator cannot be compelled to divert according to the most scientific method known. Worden v. Alexander, et al., 108 Mont. 208 (1939).

Under Montana water law, "waste" is essentially the opposite of beneficial use. "Waste" is specifically defined by Montana statute as "the unreasonable loss of water through the design or negligent operation of an appropriation or water distribution facility or the application of water to anything but a beneficial use." Sec. 85-2-102(13), MCA. The DNRC has authority to bring a court action to order a water user to stop wasting water, using water unlawfully, or preventing water from moving to another person having a prior right to use the water. Sec. 85-2-114, MCA. This authority is rarely used because of the limited amount of staff time and resources available. The cases where this authority has been exercised involved unregulated, free-flowing wells causing widespread public impacts. A court action for waste may also be brought by other water users adversely affected. 85-2-406, MCA. Additionally, an appropriator is required to return unused "surplus" water to the stream. 85-2-412, MCA.

In some states, water rights for irrigation are attached to the land historically irrigated. This "appurtenancy" requirement is generally part of Montana water law. However, a private water right for irrigation can be severed from the irrigated land and used for other purposes, subject to certain other constraints and approval by the DNRC. Brennan v. Jones, 101 Mont. 550, 55 p. 2nd 697 (1936). There is some question as to whether this is also true for irrigation district water rights. Sec.85-7-1911(1), MCA. Unless specifically stated otherwise under the terms of the transfer, transfers of irrigated land ownerships also include the transfer of any appurtenant private water rights. Adams v. Chilcott, 182 Mont. 511.

Since a water right is contingent upon beneficial use, a question which arises is whether the lapse in use constitutes abandonment of the right. By statute, "if an appropriator ceases to use all or part of his appropriation

right or ceases using his appropriation right according to its terms and conditions for a period of 10 successive years and there was water available for his use there shall be a prima facie presumption that the appropriator has abandoned his right in whole or for the part not used." Sec. 85-2-404(2), MCA. This applies to permits and to pre-1973 water rights for which a final decree has been entered. But for pre-1973 water rights that are not yet adjudicated, abandonment must be proven according to the case law that existed prior to the Montana Water Use Act. Prior Montana case law required the party claiming abandonment to show the act of abandonment (usual a long period of non-use), but also an intent on the part of the water right holder to abandon. Thomas v. Ball, 66 Mont. 161 (1923). The Montana Supreme Court recently ruled that substantial periods of continuous non-use raises a rebuttable presumption of intention to abandon, thus shifting the burden of proof to the appropriator to show that abandonment was not intended. 79 Ranch, Inc. v. Pitch, 204 Mont. 426 (1983).

Together, these concepts form the basic foundation of Montana water law. That foundation is built on the bedrock of the Prior Appropriation Doctrine and beneficial use. It is often said that beneficial use is the basis, measure and limit of a water right. As the basis of a water right, beneficial use requires that the right be used for some reasonably beneficial purpose. As the measure of a water right, beneficial use establishes the amount of the right as that reasonably necessary to accomplish the purpose of the use. As the limit of a water right, beneficial use supercedes all other evidence or indicators of the amount of a right, whether in the form of paper decrees or physical diversion structures.

As a legal concept, beneficial use is pragmatic and flexible, as it needs to be to deal uniformly with the many different site-specific circumstances of water use. An interesting question arises, however, over whether water use in an amount that may have been beneficial 100 years ago would still be considered beneficial in that amount today. The standards of what is economical and reasonably acceptable in a given locality change over time with technological innovations and society's values. Because beneficial use is the measure of a water right, the amount of a water right associated with a particularly old use is also susceptible to change. Tulare Irrigation District v. Lindsey-Strathmore Irrigation District, 45 P. 2nd 972 (Cal. 1935).

The amount of water necessary for a particular beneficial use may change over time, but the only legal government mechanism currently available to provide for a correlative change in the amounts associated with water rights is through litigation. There is no regular administrative review of water rights and whether the quantity of water used continues to be beneficial. Water use permits are verified after they are perfected; but there is no subsequent review. And, although all pre-1973 water rights are being adjudicated, that process is decreeing water rights as the amount of the historical use, and not addressing the question of whether the amounts of those rights were still valid in 1973. There is a serious difference of opinion over whether a catalogue of maximum historic use is what the Water Court should be doing. Some lawyers argue that the Constitution protects rights in the amounts beneficially used as of 1973, not maximum historic use. They argue that the questions of waste and the amount of a right beneficially used as of 1973 ideally should be resolved in the general adjudication. Obviously, this paper is not going to resolve this question. The relevance of the adjudication issue is that a market approach to improving water use efficiency would require some certainty that paper water rights are accurate reflections of actual water rights. If adjudicated rights can be challenged as inaccurate, their value to a potential purchaser goes way down.

Assuming that issue is resolved one way or the other, the marketplace may be a useful alternative to litigation in promoting efficiency. Does the change and transfer of water rights in Montana allow for the market to operate in reaction to technological innovation and changes in public values in water use? If, through improved technology, an irrigator can reduce his diversion requirement, is he entitled to sell the rights to the water he no longer needs? Or, if he decreases his diversion, should the difference between the amount of water he once used and the lesser amount he currently needs be considered no longer beneficially used, and thus, presently abandoned?

2. Severance and Exchange of Individual Water Rights

Under Montana law, the exchange of water rights is broken into two categories: "transfers" and "changes." A transfer occurs with new ownership or sale, of a water right. As explained earlier, water rights transfer with the ownership of the land to which the rights were appurtenant, unless specifically exempted in the terms of the transaction. For the purposes of its records, the DNRC requires that it be notified of any such water rights transfers, but this is a relatively simple matter of filling out a form.

"Changes" include any change in the purpose, place of use, point of diversion, or place of storage of a water right. Sec. 85-2-102(5), MCA. All changes in water rights must be approved by the DNRC, except for some involving the consumption of 5.5 cfs and 4,000 ac-ft or more per year, which must be approved by the legislature. The DNRC must approve a change in appropriation right of less than 5.5 cfs or 4,000 ac-ft if the appropriator proves by substantial credible evidence that:

"(a) The proposed use will not adversely affect the water rights of other persons or other planned uses or developments for which a permit has been issued or for which water has been reserved.
(b) The proposed means of diversion, construction, and operation of the appropriation works are adequate.
(c) The proposed use of water is a beneficial use." Sec.85-2-402(2) MCA.

Additional "reasonable use" criteria must be complied with for changes involving more than 5.5 cfs and 4,000 ac-ft.

The process by which changes are approved by the DNRC is the same as that used to approve permits for new appropriations. An applicant for a change of use must fill out an application and pay a small fee. The DNRC sends individual notices to water users in the area of the change and publishes a public notice on the application. Objections to the change application may be filed by other water users who may be adversely affected. If no objections are received, the DNRC must grant, deny or condition the application within four months of the date of public notice. If objections are filed, the DNRC has six months to grant, deny or condition the application, but this deadline can be extended by the DNRC if it can obtain the approval of the applicant, if an Environmental

Impact Statement (EIS) is required, or if extraordinary circumstances are involved. When objections are filed, the DNRC attempts to mediate the issue informally between the applicant and the objector(s), but if this effort is not successful, the matter goes to an administrative hearing.

The applicant for a water right change must show in some general manner that the proposed change will not interfere with the rights of other appropriators. If there are objections, the objectors assume the burden of proof in alleging injury to their rights. Doney, 1981.

The purpose of this process is to ensure that any third party interests in the existing hydrologic regime, including both junior and senior appropriators, are protected before the private transaction takes place, consistent with the Prior Appropriation Doctrine. Some have expressed concern over the amount of time required in this process. It is difficult and time-consuming to project the effect of a change on return flows, for example. It should also be noted that the protection afforded third parties is not for absolutely no change in the hydrologic regime; if they can reasonably exercise their water rights under the changed conditions, their objections would be unfounded. Sec. 85-2-401, MCA. Still, the goal of protecting third parties imposes a legitimate and serious constraint upon the timeliness with which change applications can be processed, especially given the standard by which no adverse effect must be shown (substantial credible evidence).

The question is whether an individual water user can, through water saving measures, decrease diversion needs for his old use and (1) extend his own use under the right, or (2) sell the no longer needed part of the water right. Is Montana water law, and the concept of beneficial use, flexible enough to allow for these new uses? There is little judicial case law directly on this point in Montana.

Some precedent in other states is discouraging. Arizona courts have found that the fact the water could be saved showed that in the past the water had not been beneficially used. Salt River Valley Water Users' Ass'n v. Kovacovich, 3 Ariz. Appl 28, 411 P.2d 201 (1966). The Arizona Court said:

"...conservation and more economical use of water is to be highly commended. However, commendable practices do not in themself create rights.

"This Court is of the opinion that the Doctrine of Beneficial Use precludes the application of waters gained by water conservation practices to lands other than those to which the water was originally appurtenant.... [Water savings] inures to the benefit of other water users and neither creates a right to use the water saved as a marketable commodity nor the right to apply same to adjacent property...."

Others, however, argue that the one who institutes water saving measures throughout the western states is entitled to the amount of water saved. Clark, 1969 and Bergholtz, 1976. Indeed, the Arizona legislature later resolved this problem in favor of a less strict interpretation of beneficial use. With a recent administrative decision by the DNRC, Montana also seems to be headed down this road. In the Final Order In the Matter of an Application for Change of Appropriation by Carrie M. Grether, Ms. Grether was allowed to expand her irrigated acreage, or extend her place of use, by salvaging her own water that would otherwise have been irretrievably lost from the source of supply. The order determined that other appropriators from the same source of supply would not be harmed thereby (there were none, although there were objections), and that the priority date for the use of the salvaged water was the same as that for the old use. "Salvage" was defined as making available for beneficial use through water-saving practices water of acceptable quality from existing water entitlements that would otherwise be irretrievably lost to the source of supply. Under this definition, return flows beneficial to junior water users cannot be salvaged, and if the water conserved would otherwise have benefited downstream users, the change would not be approved by the DNRC.

If this case is any indication, it would seem that a water right holder can extend his own use through salvage and the Montana change proceedings, if there are no adverse third party effects, without fear that the expansion would indicate a forfeiture of part of the right on the basis that it previously had not been beneficially used. If an irrigator were to improve his efficiency without making some other use of the water, however, it might be subject to abandonment after a decree in the basin is finalized. Before this time comes, any irrigators that may be able to salvage water would have an incentive to consider extending the place of use or selling a part of the water right before that part could be declared abandoned.

According to at least one eminent scholar (Stone, 1981), a new use of a changed Montana water right would also have to conform to the pattern of water diversion and consumption under the previous use, at least if there is the potential for adverse effects to third parties. This is supported by a number of cases in Colorado, the state with the most active and liberal water market in the west. Green v. Chaffee Ditch Co., 371 P. 2d 775 (1962); Farmers Highline Canal and Reservoir Co. v. Golden, 272 P. 2d 629 (1954). In other words, regardless of the amount of a paper water right being changed, actual consumption or the period of diversion after the change may not vary significantly from the actual consumption or the timing of the old use. This significantly reduces the utility of water right changes for new, different uses that may adversely affect other existing water users.

Administratively, the only difference in the treatment of a change involving an expansion of the place of use of salvaged water by the same irrigator, and the sale of the salvaged water to someone else, is that sales also involve a transfer, and a transfer must also be applied for. There are no special statutory criteria differentiating sales involving a change from any other type of a change. Leases, or temporary changes, are not specifically provided for under the Water Use Act. One expert on Montana water law states that unless the purpose of an appropriation is to deliver water to others (such as the water rights of irrigation districts, municipalities, ditch companies, etc.), an appropriator cannot lease or temporarily change his water right from time to time. Stone, 1981. Another expert asserts that leasing is allowed. Doney, 1981. The DNRC has approved a change application from one water right holder to someone else, and then another change application for that right back to the original holder. Such arrangements between water users can conceivably be accomplished under private contract between the water users, with DNRC approval of the changes. This would seem to be a somewhat cumbersome and risky arrangement for the original water right holder, however.

Again, the criteria for a change involving less than 5.5 cfs or 4,000 ac-ft are that the new use must not adversely affect another appropriator, that the new use be a beneficial use, and that "the proposed means of diversion, construction, and operation of the appropriation works are adequate." Sec. 85-2-402(2)(b), MCA. It is this requirement that could frustrate

a change application from a consumptive, diversionary use to an instream flow use. Obviously, an instream flow use usually does not require "appropriation works." In a few cases, the Department of Fish, Wildlife and Parks has been able to acquire stored water and use it for instream flow purposes. But since the statute implies appropriation works are necessary, and because instream flow rights are expressly provided for elsewhere in the statute through the reservation process, legislative intent is interpreted by the DNRC as not allowing for changes of water rights to instream flow purposes where there is no diversion, impoundment or withdrawal.

3. Irrigation Efficiency on Government and Irrigation District Land

Increasing the system efficiency of irrigation on lands affiliated with an irrigation district, water users association, or by contract with a state or federal agency is a somewhat different matter. In such cases, a private incentive for efficiency cannot be created out of the water user's ability to sell a portion of his water right. Benefits to the irrigator from improved irrigation system efficiency are still possible, however. If an irrigator is serviced on a contract with a state or federal agency, that irrigator may have to pay for the service based on the amount of water used. This provides a built-in incentive for the irrigator to use as little water as possible, at least to the extent the price for water is a significant proportion of the irrigator's operating costs. If the method of payment is based on the amount of land irrigated, however, irrigation system efficiency is less important to the irrigator.

It is generally the latter method by which irrigators affiliated with an irrigation district or water users' association are assessed for water. In such cases, the benefits of increased efficiency accrue not to individual irrigators, but to the districts.

As mentioned earlier, if an irrigation district actually owns a water right, that right is probably strictly appurtenant to the land irrigated. Thus, if water is salvaged by the district, the district could not sever its water right and sell any extra. Under existing law, then, districts in this situation do not have this incentive for salvage. If this strict appurtenancy requirement

were removed, profits from such sales could be used to lower assessments charged to individual members of the district, increase repayment to any government agency they may be financially obligated to, or reinvest the profit in increased operation and maintenance budgets. An arrangement can be conceived in which profits from sales of the amount of water salvaged from improved diversion and distribution efficiencies could be allocated to district responsibilities, while profits from on-farm savings in the district could be used to lower individual irrigator assessments. Irrigation and conservancy districts in Colorado have long been involved in that state's water market.

Programs

1. Financial Assistance

The DNRC provides grants and loans for many kinds of water-related projects, including projects to increase irrigation efficiency. The criteria by which projects are judged by the DNRC are weighted towards agriculture and conservation. Thus, irrigation efficiency-type projects have generally fared quite well in competition with other water-related projects for these limited funds.

A private individual is eligible for grants of up to 25% of the total project cost or 5% of the estimated funds available for grants in a biennium, whichever is less. 85-1-614, MCA. Low-interest loans to private individuals are limited to $200,000, 15% of the funds available for private loans in a biennium, or 80% of the fair market value of the security given for the loan, whichever is less. 85-1-613, MCA. Competition for the limited grant funding can be fierce, and the final decision rests with the legislature. Loans to private individuals can be approved by the DNRC director. Low-interest loans for more than $200,000 are also available to public entities such as irrigation districts. These loans must be approved by the legislature.

The DNRC also administers the "223" grants to conservation districts for special projects and equipment promoting conservation, including water conservation. Since the program was implemented in 1981, several irrigation efficiency demonstration projects have been funded. Currently, the 223 program is providing about $200,000 per year in grants.

Financial assistance for irrigation efficiency received something of a windfall this year from the Oil Overcharge funds awarded to the state. Some of the money has been awarded to conservation districts for irrigation efficiency demonstration projects such as the purchase of neutron probes, which measure soil moisture, for improved water management.

Federal funding for irrigation-related conservation measures is also available. One of the most successful programs has been the Agricultural Conservation Program (ACP) administered by the Agricultural Stabilization and Conservation Service (ASCS). This program provides cost share grants of up to $3,500 per individual annually or up to $10,000 for certain longer term projects or group projects. The Great Plains program, administered by the Soil Conservation Service (SCS), provides long term contract cost sharing for some irrigation system improvements in eastern Montana. The PL566 Small Watersheds program is currently contributing to three irrigation-related watershed projects in Pondera, Teton, and Park Counties. The federal government also provides funding for Resource Conservation and Development projects, which contributed to the installation of improved off-farm irrigation conveyance systems in Ravalli and Beaverhead Counties. Information on these programs is available through local ASCS and SCS offices.

2. Technical Assistance

The Cooperative Extension Service at MSU and its local county extension agents are available to help agricultural producers with questions about how they can improve their irrigation operations. The Soil Conservation Service (SCS) also has a great deal of expertise around the state, and especially through its local technical staff, to help irrigators. Recently, the Energy Division of DNRC, with sponsorship from the BPA, WAPA, and rural electric cooperatives and the cooperation of the Extension Service and the SCS, conducted

a number of workshops around the state to assist irrigators in being more energy efficient by being more efficient with their water. The U.S. Bureau of Reclamation and the Bureau of Indian Affairs also provide technical assistance to irrigators who operate on lands within the projects managed by these agencies.

Recent budget cuts and a change in priorities at the federal level have taken a toll on the availability of these resources, however. The Extension Service no longer employs a full-time irrigation specialist. In the past, this person filled the coordinating role for the Extension Service's many diverse efforts in the state aimed at providing technical assistance to irrigators. The utility of generic information applicable statewide on irrigation efficiency is limited, however. Irrigators are each, to a certain extent, unique. Local, hands-on assistance to deal with the special circumstances and specific problems of individual irrigators is more important. SCS technical staff in some parts of the state have been swamped with the new Conservation Reserve Program (CRP), and their ability to help local irrigators has been diminished in some parts of the state. The Energy Division is planning to continue to conduct its workshops and to publish a field handbook for irrigators with water scheduling and system operation and maintenance guidelines.

Practices

Except in times of drought, Montanans do not consider themselves as water short. In fact, we typically lament the fact that so much water escapes the state each year, even though it has probably served several useful purposes many times. This mindset is a driving force for the state's water policies. State leaders talk a lot about the value and scarcity of Montana water, but this is contradicted by the underlying mentality with which it is managed. We continue to issue permits for the free appropriation of water, for example, even though we may not know whether water is legally available on a regular basis. And even in cases where people are charged for irrigation water, it is typically assessed on the basis of how much land is being irrigated and the cost of distributing it, not on the basis of the amount of water and its intrinsic value in the agricultural production for which it is used.

Until the general adjudication is complete and a final decree is entered, the DNRC, upon its own initiative, can do very little under existing law to administer and enforce water rights. Without a public request to act, the DNRC cannot close basins to further appropriations, it cannot appoint water masters, and abandonment is nearly impossible to prove. Information on the availability of unappropriated water, with which to make decisions on permit applications, is dated and often poor. No one really knows how much water is available for appropriation or already tied up. On top of this, federally reserved water rights cast a long shadow of doubt over the future availability of water for use under existing water rights. The problem of federally reserved water rights may not be resolved in the near future, and even if the Water Court concludes the general adjudication soon, many believe that this adjudication will not result in decrees accurate enough to shed much light on the question of water availability. Except in those areas where the question of legal availability has been rendered moot by frequent, real, physical shortages, the question becomes whether a concern for efficiency is akin to putting the cart before the horse. This practical question can only be answered with the fact that the state has to try to manage its water the best it can, even if it does not have all the tools it would like. The day-to-day management of water would surely benefit from the resolution of these problems, but the need for day-to-day management continues anyway.

Another aspect of real, rather than perceived, water management in Montana is that in some localities, water users have developed an informal system of water sharing adapted to existing natural conditions that works well but bears little resemblance to prior appropriation. Any further appropriations or changes of existing rights in such basins may disrupt the traditional system, which in its own way may promote an economically efficient water allocation. In some cases, the informal water apportionment system may work because water is relatively plentiful. In other cases, it works even in water-short areas because the water users honestly trust each other. Who's to say the legal enforcement of the Prior Appropriation Doctrine upon these people will result in a better allocation of water? Perhaps these people should be encouraged to apply to have the basin closed and allowed to continue to manage the water use in these areas in their own way. Or perhaps these situations are anachronisms of an earlier era that will have to give way to economic growth, societal change, and the new water uses incumbent to them.

What matters about irrigation efficiency is its real effect on water management, and not what bureaucrats and academics think about it. On the other hand, what the U.S. Supreme Court may think about it, whether based on fact or theory, may also matter considerably. Still, some recognition should be given to the divergence of the legal theory and real practice of water management in Montana.

Problem Statement

Montana is viewed by other western states as relatively wealthy in terms of its natural water supply. That supply is finite, however. Improved water use and distribution efficiency will one day (today, in some basins) be the only feasible source of water to meet future economic demands. Other states in our river basin neighborhood and non-consumptive water users have a reasonable expectation for Montana to be prudent in its water consumption long before the physical limits of supply are met. If they believe this expectation is not being met, they may force the state to justify its water use efficiency in the courts. The courts' solution to any perceived lack of Montana water use efficiency could be some rigid, arbitrary, and perhaps draconian prescription of water uses. The state is better off seeking opportunities for increasing water use efficiency via voluntary, flexible, win/win solutions before the matter goes to the courts. Indeed, if such a program were being developed, this would be strong evidence before the courts in support of the state's capacity for judicious water management.

Irrigation accounts for over 90% of Montana's consumptive water use and is thus the most obvious target for improved efficiency. Upon closer scrutiny, however, increasing irrigation efficiency in a basin is not as easy as it first appears. A number of highly complex and interrelated geographic, geologic, hydrologic, and economic factors beyond the irrigators' ability to control are involved. Increasing the system efficiency of one irrigator may have adverse effects on other irrigators, other water uses, and the environment.

Theoretically, the law and our government institutions change over time to reflect the changes in our social and political environment. In some areas, the adaptation of laws and government institutions is very slow. In Montana, water law and policy is adapting slowly from its frontier heritage to today. In dealing with the challenges of the frontier, the goal of our water law was to allow the orderly appropriation of the resource and to protect the appropriators' rights to use as much of the water as they could in producing economic wealth. Today, the demands upon the resource are more numerous and diverse and society views the resource with greater sophistication. Progress no longer means taming the wide-open frontier; it means using our limited resources ever more wisely.

Current Montana laws and government institutions do not provide irrigators with sufficient incentive to use water "ever more wisely". Emphasis has been placed on protecting historical uses, generally at the expense of additional, sometimes higher value uses. It may be possible to have both, while expanding the economic opportunities of historical water users.

It is probably obvious that this paper is leading to a consideration of greater reliance on markets to allocate water as a means to increase water use efficiency. Sales of water rights already are theoretically possible in Montana, although restrained by administrative review procedures geared toward protecting other water users. Those procedures may or may not impinge on improved economic efficiency, but they probably are not the largest reason for the lack of market activity. The fact is, even if the legal impediments were removed, there may be little market demand for water in most of the state.

The lack of legal and market incentives does not eliminate the validity of the seven previously stated justifications for increasing water use efficiency. The lack of incentives is the problem to be overcome in achieving the policy objectives of maximizing the water use productivity of individuals and the aggregate usefulness of the resource to the state. If increased water use efficiency is to be realized in Montana, the state is going to have to improve its water allocation system to allow and perhaps create economic incentives for increased efficiency, while continuing to protect private rights and public interests.

Discussion of Options

The options, as presented to the Technical Advisory Committee, are numerous and diverse. Some of them are mutually exclusive of each other, but many could be combined to compose a comprehensive program to improve irrigation efficiency in Montana.

No Action

It can be argued persuasively that nothing needs to be done to improve irrigation efficiency in Montana. There is no obvious overriding public concern about the issue. It certainly does not appear with any regularity in the newspapers or on television. It does not seem to rank high even on environmentalists' lists of natural resource issues, except in the driest years.

Montana's present irrigation practice may result in a more even distribution of water, when the reuse of return flows is included in assessments of basin and statewide efficiencies, than would result from all irrigators suddenly improving their individual system efficiencies. This would be very difficult and expensive to prove or disprove; empirical evidence can be found to support and refute this position. Just because an issue is difficult to deal with and few people may be aware of it does not mean no action is needed, however.

Concerns that a court case could arise based on the public trust doctrine, reserved water rights, or interstate equitable apportionment are speculative, as is the contention that the litigants bringing the suit would assert that existing Montana irrigation efficiencies could be increased to improve the water supply for everyone. The chance that such a suit would arise does not seem remote in our litigious society, however. And the likelihood that irrigation efficiency would arise in such a case would also seem reasonable. The state could answer the irrigation efficiency question with the return flow reuse argument. The legal viability of this argument must be carefully considered. If no action is the preferred alternative, such a litigation strategy should be supported by the state water plan.

Education and Research

1. Increase Information Availability and Education Opportunities

In some cases, a lack of irrigation efficiency may be attributable to some difficulty on the part of irrigators in getting the information they need to improve their technology or practices. As described earlier, programs are available to provide irrigators with this information. If there is a problem, it may be one of advertising; or perhaps more funding for these programs would allow the information to be more readily available in the agricultural community.

The problem would not appear to be the methods by which information is provided, although it is critical that the information emphasize the connection between improved system efficiency and profitability. Alternatives that require substantial investments with only modest paybacks are not too attractive in today's difficult economic and financial climate. Irrigators are also wary that the experts tend to understate the additional labor costs and business risks associated with more efficient systems and new technologies. Few agricultural producers are interested in efficiency for efficiency's sake; its relevance is the ability to put money in one's pocket.

Most professionals in the field understand this. And the fact remains that for those agricultural producers who want it, information is available. The availability of this information is important, but it is not a major problem contributing to a lack of optimal efficiency. The bigger problem, again, is in the lack of incentives that would make an irrigator want to look for the information.

2. Increase Irrigation Technology Research

Montana's agricultural experiment stations are engaged in research intended to develop technologies to improve irrigation in Montana. No doubt, more money would allow for the growth and acceleration of this research. The technologies developed for increasing irrigation efficiency at Montana's agricultural experiment stations should be appropriate for Montana irrigation conditions;

specifically, they should be targeted for shorter growing seasons and hay. Again, the optimal technology is constrained by more than just the physical capabilities of the land and climate. To some extent, it is also limited by the circumstances of individual irrigators and the basins they operate within.

3. Increase Basin-Specific Data Collection on the Disposition of Irrigation Water

There is no single optimal numeric system efficiency for irrigation throughout the state. It will vary from place to place depending on the physical and economic factors affecting the size of diversions and the effects of those diversions upon the environment and among water users.

The theoretical underpinnings of the disposition of irrigation water is fairly well understood and accepted in the hydrology profession. Basic data on the quantity and rates of return flow in Montana basins are not available, however. Studies may be needed to confirm some assumptions commonly used and to provide greater certainty to decisions about how an increase in system efficiency under certain representative circumstances will affect streamflow, other water users, and the environment.

A research project that traces the return flow effect of irrigation in three or four representative areas of Montana would seem to be a very useful exercise, especially if the results were reasonably transferable. It is recognized that the technical challenges of such a project are many, and that it could be expensive. If it proves impossible or too expensive, a second-best alternative is to accelerate basic data collection on Montana's shallow groundwater and, specifically, hydrologic conductivity in various alluvial materials.

Positive Financial and Market Inducements

1. Provide Direct Government Subsidies

Direct government subsidies for increased irrigation efficiency already are available through the state's water development loan and grant programs, as

previously stated. If the amount of money disbursed through this program were increased, more projects that increase irrigation efficiency would probably receive funding. The ranking system could also be changed to give greater preference to such projects, although the present criteria appear already to favor these projects.

Another potential source of funding is the federal Pick-Sloan program. This program was originally intended as a massive water development plan for the Missouri basin. Under this plan, irrigation projects in the upper basin were to be subsidized by revenue from the sale of hydroelectricity. Only a very small percentage of the irrigation was ever developed and, realistically, little more is expected. The electric rates are still structured in such a way as to provide this subsidy, however. Instead of new development, this subsidy could be applied to the rehabilitation and increased efficiency of existing projects. In this way, the promise of compensation to the upper basin states for incurring the costs of flood control in the lower basin would be fulfilled. South Dakota is proposing changes to the Pick-Sloan program along these lines. Such a change to the Pick-Sloan program would require congressional approval, possibly in the face of opposition from the public power lobby, and a reallocation of funds at a time of severe federal budget constraints.

Tax credits are provided to persons who invest in energy conservation measures. A similar tax credit could be provided to persons who invest in water conservation measures. The credit would probably be directly related to the costs of purchase and installation, with some limit, and could be applied to all consumptive water uses. This would defray the direct individual investment in more efficient water use.

2. Improve "Change" Statute

Several things could be done to try and improve the marketability of water rights by revising the statute governing changes. First, the number of market participants could be expanded by amending the statute to allow changes for all beneficial instream flow purposes. This could substantially broaden the market and increase demand for older water rights. Some thought must be given to whether private individuals should be allowed to purchase water for instream

flow or whether, as a public purpose, only public entities should be allowed to do this. Under the water reservations process, only public entities are allowed to appropriate water for instream flow purposes. Clearly, a private right for instream flow purposes could not be enforced for the exclusive use of one individual, since navigation has been protected by Montana's courts as a public water use under the public trust doctrine. Whether public or private, instream flow applicants should have to show the ability to monitor and protect the right for public purposes.

The time involved in processing a change is also a problem, especially in times of drought emergency when a temporary change might be useful to save a particularly valuable fishery or to meet municipal or domestic water needs. Emergency changes could be allowed, and exempted from the change application requirements, if a temporary (a maximum of one month) change in response to some public emergency is agreed to by a willing water right holder and the temporary user. At the end of the emergency, or the maximum period of time, the right would revert to the original holder. The trigger for the emergency change could perhaps be a gubernatorial declaration of a drought emergency, after which the DNRC should simply be notified of any agreements invoking the emergency change exemption. The emergency water user could specifically be held liable for adverse third party injuries, subject to the third party being able to prove them.

Another possible solution is to streamline change reviews involving longer term leasing arrangements. Leasing is not prohibited under the current law, but would require a separate change application each time the place or purpose of use changed, which would be at least twice (once at the beginning of the new use and at the reversion to the old use at the end of the lease). Other contractual leasing arrangements could also be conceived for preserving instream flows in dry years. For example, the Montana Department of Fish, Wildlife and Parks could propose to pay a yearly fee to individual irrigators in return for their agreement not to irrigate in dry years, and to enforce their right for instream flow purposes. Where the water rights holder decides to go along with this "drought insurance" arrangement, and where third party adverse effects are unlikely, the law should not be an impediment by requiring a change application each time the water is used for instream flow and again when it reverts to

irrigation. The law could provide for a single change review of private water leasing arrangements.

Funding for additional staff in DNRC Field Offices could also decrease the time required to process change applications, especially for those changes that do not involve the filing of objections. Another more radical alternative is to do away with the contested case hearing process and replace it with a more technically-oriented administrative procedure, in which third party and public interest considerations are addressed without the adversaries becoming so intimately and emotionally involved. This would require more specific uniform rules and definitions to measure "adverse effect," rather than relying upon the applicant and objectors to assert their own definitions. The problem with such an approach is that individual, site-specific problems may not be adequately presented and considered and that the bureauracy may not be as responsive to individual concerns as the quasi-judicial hearing process.

The DNRC has the authority to condition its approval of changes by requiring the new user to measure water use. In cases where the change involves water salvage, perhaps more metering should be required to further insure that new uses do not exceed the amount of water salvaged.

Before these means to accommodate easier and more flexible water rights changes are attempted, the problem of the inaccuracy of existing rights should be considered. If water rights do not bear a strong resemblance to the actual use of water made under them, easier changes may allow holders of inflated rights to sell water they've never actually used. In effect, this places junior water users in tremendous jeopardy. This is already a problem until a final decree is entered, because changes are occurring based on the claims of water rights being adjudicated. The DNRC, by itself, cannot challenge these claimed rights because they are "prima facie" evidence.

While junior water rights holders will have the right to object to changes of inflated rights, they would also assume the burden of proving the inaccuracy of the right as well as their own injury from the change. Furthermore, the

juniors had a similar right of objection during the general adjudication. If the adjudication results are inaccurate, that does not bode well for the objection process' reliability in leading to accurate and equitable results in the change process.

3. End strict appurtenancy requirements of water rights for land associated with irrigation districts, water users associations, and land associated with federal irrigation projects.

The strict appurtenancy requirement is a barrier to water use efficiency. While individuals should perhaps not be allowed to reap the entire profit from the government investment in water developments, they need some kind of incentive to be efficient, and some modest part of the profits is probably sufficient. Water salvaged by the district or on district lands could be sold or leased by the district, with the profits partitioned between the district and the individual irrigators that contributed to the salvage of water.

4. Water Banking

Government subsidies and improving the government regulation of the market for water does not address the fundamental problem of the current lack of market demand for conserved water. Without demand, the market will not function.

Consider the operation of a bank. A bank pays people to deposit their savings in it. Thus, banks give people some incentive to save. Generally, the longer the period of deposit, the greater the payment to depositors. Savings deposited in the bank are loaned out to borrowers or invested in ways that profit the bank. Essentially, a bank reallocates savings in a way that creates wealth.

The state could manage the allocation of its water like a bank manages the allocation of its money. The state would pay people to deposit their water savings, through lease or sale, in the bank. This would create some modest demand for everyone to increase their water use efficiency, and force people to think of water as a valuable commodity. Bank purchases obviously would demand higher prices than leases, but leases would afford water rights holders the

opportunity to withdraw the deposit without permanently relinquishing their rights. From its reserves and deposits, the bank could sell or lease water to "borrowers," some of whom may want water only for short periods while others may be willing to pay more for a permanent right. Early withdrawals of deposits-on-lease would be possible, but the bank could require payment of penalties as a disincentive.

Once deposited in the bank, water would not retain its original priority date except when withdrawn by the original depositor on lease. In this way, the bank's bookkeeping is much easier and the probability of third party objections to the transaction are decreased. With less water being diverted by senior water users as a result of bank transactions, the reliability of the natural water supply for junior water users generally is improved. The exceptions will be those cases in which junior water users truly depend more on senior water user return flows than on the natural water supply. Adverse effects to junior water users would seem more likely in strictly private water sales or leases where the transaction also includes a completely different, higher priority use.

Water reallocation through the water bank would always be subordinate to all previously existing uses. Thus, it would not be a de facto mechanism for legally protecting instream flows, although an initial result may be more water in the streams. To legally protect that water, instream flow advocates would have to compete in the marketplace like everyone else, or apply for reservations, or apply for purchase or lease from the water bank. The priority of water acquired through the banks would be the date of the application for purchase or lease.

The establishment of the bank would not preempt the development of a private water market. It would still be possible to purchase an early priority date through private transactions, which for most new uses makes a private transaction more lucrative. With the new demand created by the water bank, the private price of water would probably go up. Such transactions could be taxed, however, with the revenue allocated to the operation of the water bank.

A further refinement of this alternative would be the development of regional banks, with one in each sub-basin of the state. Irrigation districts and other public entites could also create their own private water banks to administer salvaged water on their own behalf. When demand exceeds supply in one of the regional or "branch" banks it could "borrow" from other banks in the same major drainage basin. This system would provide the coordination necessary to insure that water allocation decisions and their effects throughout a major drainage basin are considered and reconciled. Obviously, the price the banks pay for salvaged water in basins with greater water scarcity will be higher than the price paid by banks in basins without water shortages.

A separate oversight function to review and protect third parties and the environment would still be needed for transactions involving the water bank. Further, as salvaged water is bought and sold, some monitoring system is likely to be required to verify that any "appraisal" of the amount of water that will be salvaged, and that is paid for, is actually produced. Such a system could be expensive. Each regional bank would also require some modest bureaucracy of book keepers, appraisers, and "loan" officers. It will be difficult to set prices for water that create adequate incentives for increased efficiency, are not too expensive for new users, and that on balance, allows the bank to be financially self-sustaining. In the first few years, the banks may not be profitable owing to startup costs and a low willingness of individuals to pay. In the long run, however, the underlying assumption of the state's water policy is that the demand for water is going to grow. Under that same assumption, the banking system should at least be able to pay for itself over the long term. That's a lot more than most other government enterprises can do.

From a legal standpoint, there is a secondary advantage to the state becoming a major participant in the water market. A great deal of concern has arisen over the state's ability to control water use within its borders since the U.S. Supreme Court's Sporhase decision. This decision ruled that water is an article of interstate commerce subject to the dormant commerce clause. Sporhase provided that some state restrictions on interstate water use may be closely tied to a state's legitimate need for water conservation. As mentioned earlier, this proviso, combined with earlier court decisions allowing states to exercise greater control when they are market participants, not just market regulators, led to the creation of the state water leasing program.

The water leasing program may not pass muster before the counts. First, the status of the state as a market participant under this program is somewhat contrived. Second, it apples only to out-of-major-basin diversions or to large water uses. This calls into question whether the purpose of the program is really conservation. If conservation were important to Montana, why does it not seek conservation from all types and sizes of water uses?

By going to the water banking concept, Montana's allocation system would not be susceptible to such a challenge. The conservation program would apply to everyone, and the state is clearly a bona fide market participant, capable of buying and selling water to whomever it wishes.

This alternative may be considered too radical. With the water leasing program, however, the precedent of the state as a water broker has already been set. This would merely be the next logical step.

Conjunctive Use and "Physical Solutions"

Another idea proposed to increase efficiency in the allocation of water is the more effective conjunctive management of groundwater and surface water supplies through "physical solutions." An example of a physical solution may be helpful.

If a person wanting to make a new use of water is constrained from doing so by the prior right and use of a senior appropriator, a "physical solution" is possible if the new water user provided the senior water user with an equivalent, alternative source of supply. Suppose the senior water user diverts for irrigation downstream from the junior water user, who also wants to divert from the stream and has no supply alternative. But the senior water user also happens to irrigate over a very productive aquifer. The physical solution is for the junior water user to pay for a well the senior water user can irrigate from and for doing so, to assume the water right of the senior water user. Or the junior could pay for a more efficient irrigation system for the senior water user, and assume the right to the salvaged water.

As proposed by the idea's leading proponent (Dunning, 1986), the physical solution would be mandatory for the senior water user so long as the junior water user could show the new water supply is equivalent to the old one and no adverse third party effects would occur. In this way, junior water users who could afford to do so would become predators on the inefficient water use of senior water users. If such water right predation is deemed desirable, it would have to be authorized in Montana's statute.

The concept would not have to be mandatory, however. In Montana, it would be subject to a separate change proceeding for the old use and separate permit application proceedings for the new use. The law could be amended to provide for a single review of voluntary "physical solutions," thus increasing administrative efficiency.

The idea that surface water supplies might be exchanged for ground water, especially for irrigation uses, is somewhat novel in Montana. Ground water is still a relatively untapped resource in this state, and not all that much is known about state groundwater supplies. To the extent groundwater supplies are not mined or otherwise abused, they may extend the use of surface water supplies for uses that may not be possible with ground water, such as instream flows. The concept of conjunctive surface and groundwater management is still in its infancy, at least in this state, and may hold some promise for increasing efficiency in water allocation.

Impose Regulatory or Negative Incentives

1. Basin Closure

One reason there is so little market demand for salvaged water is that the state's water allocation system is based on the assumption that there is still a large amount of unappropriated water available and that this water should be free for the taking. As long as the state treats water as a free good, its citizens are unlikely to be concerned about its waste. What may have worked in the frontier will not necessarily work in the 21st century, however.

The critical step in creating market demand for salvaged water is to define the limits of the water supply. The availability of unappropriated, unpermitted, and unreserved water in each sub-basin should be quantified on a percentile basis. Unfortunately, this cannot be done until the extent of existing rights, including those reserved by the federal government, are known. In the meanwhile, the next best thing is for the state to end the free appropriation of water for new uses in those basins where water is already legally scarce.

Montana law provides for the preclusion or rejection of permits for new appropriations in a highly appropriated basin or subbasin. There are two ways this can happen. First, the legislature can by law preclude permit applications in such basins. Secondly, 25% or 10 of the water users in a basin, whichever is less, may petition the DNRC to adopt a rule rejecting or providing for the modification or conditioning of permits in that basin. The petition must allege facts showing that, throughout or at certain times of the year for certain beneficial uses, there are no unappropriated waters in the source of supply, the rights of prior appropriators will be adversely affected, or further uses will interfere unreasonably with other planned uses or developments for which a permit has been issued or for which water has been reserved. Sec. 85-2-319, MCA. Within 60 days of the submission of the petition, the department must inform the petitioners either that the petition is being denied, that the allegations are being studied, or that the rule-making has commenced.

It is increasingly clear that in some basins, water may not be available for additional appropriation. Yet it may be difficult to convince the legislature of this, as a basin closure may be highly emotional and political. And basin appropriators generally don't care whether water is available to junior appropriators until junior users start infringing upon their source of supply, when it is already too late. They also don't want to be the bad guys in their local water users community. Perhaps the DNRC should be actively soliciting water users in certain basins to petition for basin closures, or consider proposing to the legislature that these basins be closed. An alternative is to provide additional mechanisms that trigger such closures. An example of such a mechanism would be allowing the department to engage in rule-making upon a technical threshold determination that water is not available for certain beneficial uses a certain percentage of the time.

The legislature could also simply appropriate all the state's remaining unappropriated, unpermitted, and unreserved water for lease or sale, conceivably through the state water bank. This would constitute the bank's initial "reserves," and would provide an immediate source of "capital" for the bank. Each branch bank would be assigned some initial reserves in relation to the amount of water physically available for appropriation in that basin.

2. Enforce Waste and Abandonment Statutes

With more staff resources allocated to this purpose, the DNRC could more aggressively enforce the "waste" statute now and the "abandonment" statute upon completion of a final decree in particular subbasins. The waste statute provides a very general grant of authority for the DNRC to petition the district court and for the district court to "regulate the controlling works," "order the person to stop wasting, unlawfully using, or interfering with another's rightful use of the water to cease and desist from doing so," and "to take such steps as may be necessary to remedy the waste, unlawful use, or interference." Perhaps more specific penalties could be provided for the waste offense, or more specific guidelines for when the department is obligated to petition the court. Again, the aggressive enforcement of this action would require a budget boost.

The department cannot petition the district court to deem water rights abandoned until after the general adjudication process is complete in a subbasin and unless an appropriator ceases to use all or a portion of his water for a period of 10 continuous years in which water was available for his use in at least some of those years. It is a little unclear whether the department would petition the district court to abandon water rights immediately upon issuance of a final decree if the water was not used the previous 10 years, or if the department has to wait 10 years after the final decree. As a matter of policy, the latter alternative would allow water rights holders a 10-year "window of opportunity" to sell or lease their water right rather than have it declared abandoned. This may only be an effective incentive to marketing water rights if the DNRC makes clear its intention to aggressively pursue abandonment. It may also unfairly reward any appropriators with inflated water right claims.

3. Require Conservation Plans be Submitted as Part of New Permit Applications

The state could require that all new water appropriators for consumptive beneficial uses consider conservation measures in their planned use. This could be required statutorily as a criterion for permit approval by DNRC. This option does nothing to increase the irrigation efficiency of existing users, however.

4. Tax Water Use

If water use were taxed on the basis of the amount used, there would be a significant incentive for appropriators to use less. There are several ways a tax on water use could be structured. It could be assessed as an ad valorem tax, related to the economic value of the activity for which the water was used. It could be a severance tax, requiring an actual impoundment, diversion, or withdrawal. It could be progressive, with a higher rate the more water used, or a flat rate. It could be assessed against actual use or the amount for which there is a right. This alternative gets complex very quickly, especially when the differences between several categories of water use, constitutional issues, and federal implications are considered. More detailed analysis of this option could be provided if there is a high level of interest.

Summary of Options

* No Action
    1. Do not prepare a plan component on this issue.
    2. Prepare a plan component explaining complexity of issue and defending existing practices in anticipation of litigaton on the issue.

* Education and Research
    3. Increase information availability and training for irrigators on how to become more efficient.
    4. Increase funding for research on irrigation technology and improved practices.
    5. Increase funding for studies of the disposition of irrigation water for application in assessing basinwide irrigation efficiencies.

* Positive Financial and Market Inducements
    6. Increase state funding to water development program.
    7. Seek Pick-Sloan funding for projects to increase irrigation efficiency.
    8. Provide water conservation tax credits.
    9. Revise statute to allow "changes" to instream flow uses without a diversion, impoundment or withdrawal.
    10. Provide for temporary emergency exemptions to the change statute in drought situations with approval of water right holder.
    11. Provide for a single change review for water lease arrangements, including drought insurance arrangements, of up to 10 years.
    12. Increase DNRC staff for expedited review of changes.
    13. Replace objection/hearing process with simple administrative procedure.
    14. End strict appurtenancy requirements for irrigation district, water user association, and federal reclamation project water rights.
    15. Establish and fund a central state water bank, with regional branch banks, to purchase and disburse salvaged water.
    16. Provide for establishment of private water banks by other public entities.

* Conjunctive Use and "Physical Solutions"
    17. Allow for voluntary physical solutions, with single administrative review.
    18. Allow for junior user predation on inefficient senior water use, or mandatory physical solutions.
    19. Encourage conversion of surface water rights to groundwater rights, or vice versa, where water supply would be equivalent, where there would be no adverse third party or environmental effects, and where it is economically efficient to do so.

* Impose Regulatory or Negative Incentives
    20. Encourage legislature to close fully appropriated basins to further appropriations.

21. Solicit water user petitions to close fully-appropriated basins.
22. Seek statutory revision enabling the DNRC to close basins upon threshhold determination that a basin is fully appropriated.
23. State should appropriate all unappropriated, unpermitted, and unreserved water for sale or lease, perhaps through state water bank.
24. Enforce waste statute, with clarification of the procedural guidelines, standards for establishing waste, and penalties.
25. Enforce abandonment statute upon immediate issuance of final decrees.
26. Advertise the enforcement of the abandonment statute 10 years after final decrees, providing "window of opportunity" for market reallocation of water before resorting to regulatory approach.
27. Require conservation plans as part of new permit applications.
28. Tax water use.

Recommendations

Fourteen options are recommended by the Technical Advisory Committee on Agricultural Water Use Efficiency to the State Water Plan Advisory Council. Most of these came from the categories of Education and Research and Positive Financial and Market Inducements. Obviously, some of these recommendations come from among the options presented to the Committee, while others are further refinements of those options or were created by the Committee itself.

A. Education and Research

1. Evaluate the availability and effectiveness of information and training provided by state and federal agencies to irrigators on how to become more efficient.

2. Evaluate the adequacy of funding for research on irrigation technology and its applicability to Montana circumstances. Does irrigation research receive an appropriate share of agricultural research dollars in Montana? Emphasis should be placed on the use of demonstration projects by actual irrigators to show other producers the benefits of improved technology.

3. Prepare and distribute public education materials explaining the complexity of the irrigation efficiency issue in anticipation of litigation on the issue. One forum would be this component of the state water plan. Materials should be targeted for distribution in schools, libraries, and government offices.

4. Support basic research on ground water return flows from irrigation, especially on the rates and volumes of water involved under different geologic conditions indigenous to Montana.

5. Assemble a technical committee of various state and federal agencies to develop criteria for identifying the specific areas of Montana where increasing irrigation efficiency would have the greatest benefits to the public. These criteria would be used to target the available technical and financial resources of the state and federal governments.

6. Study the possibilities of innovative water allocation institutions and arrangements such as water banking and "physical solutions," as discussed in the Issue Paper.

B. Positive Financial and Market Inducements

1. Support state and federal funding for projects that increase irrigation efficiency. The legislative preference for agricultural projects in the Water Development Program should be reinstated. Funding should be targeted to projects for the rehabilitation of existing irrigation facilities and for increasing on-farm system efficiency.

2. Seek Congressional authorization to use Pick-Sloan funding for projects that would increase irrigation efficiency.

3. Amend state statute to specifically allow for water rights changes to instream flow purposes without a diversion, impoundment, or withdrawal.

4. Enact statute to provide for temporary exemptions to the requirement for department approval of water right changes in emergency situations. Such changes must be voluntary on the part of the original water right holder, of limited duration (3-6 months) and notification must be provided to the department. Liability for any adverse third party effects would be assumed by the emergency water user.

5. Enact statute to provide for leasing of water by water rights holders whose original use may not have been for this purpose. Such private leases would be subject to approval by the department as a change in water right, but only once. At the end of the lease and reversion of the water to the right holder, a second change approval would not be necessary.

6. Enact statute to end strict appurtenancy requirements for irrigation district, water users association, and federal reclamation project water rights, and allow these entities to sell or lease salvaged water beyond their boundaries, subject to department approval of the change.

C. Non-Voluntary Incentives

1. Publish information on basin closure, abandonment, and water rights enforcement procedures for distribution to persons inquiring to the department with water availability problems.

2. Define, through statutory amendment or department regulations, standards and procedures for enforcing waste provisions in the law.

BIBLIOGRAPHY

Anderson, Terry L., Water Crisis: Ending the Policy Drought, (Washington, D.C.: Cato Institute, 1983).

Angelides, Sotirios and Eugene Bardach, Water Banking: How to Stop Wasting Agricultural Water (San Francisco: Institute for Contemporary Studies, 1978).

Bauder, James W., Irrigating with Limited Water Supplies, Circular 1262 (Bozeman, MT: Cooperative Extension Service, MSU, 1981).

Bergholtz, Warren E., Jr., Water Saved or Water Lost: The Consequences of Individual Conservation Measures in the Appropriation States," 11 Land and Water Law Review, 435, (1976).

Blackwelder, Brent and Peter Carlson, Survey of Water Conservation Programs in the Fifty States, Model Water Conservation Program for the Nation (Washington, D.C.: Environmental Policy Institute, 1982).

Brown, Lee and G. Bonem, "Some Remarks on the Role of Markets in Managing Western Water" in EQC Ninth Annual Report: Montana's Water (Helena, MT: 1985): 131-137.

Brown, Lee, Brian McDonald, John Tysseling and Charles Dumars, "Water Reallocation, Market Proficiency, and Conflicting Social Values" in Water and Agriculture in the Western U.S.: Conservation, Reallocation, and Markets, Gary Weatherford (ed.), (Boulder, Co.: Westview Press, 1982): 191-254.

Clark, R. "Background and Trends in Water Salvage Law," 15 Rocky Mountain Mineral Law Institute, 421 (1969).

Doney, Ted J., Montana Water Law Handbook (Helena, MT: State Bar of Montana, 1981).

Driver, Bruce, Western Water: Tuning the System, Report to the Water Efficiency Task Force of the Western Governors' Association (1986).

Dumars, Charles, "Legal Parameters of a State-Controlled Water Market," in EQC Ninth Annual Report: Montana's Water (Helena, MT: 1985): 76-81.

Dunning, Harrison C., "The 'Physical Solution' in Western Water Law," 57 University of Colorado Law Review, No. 3, 445 (1986).

Ellis, Willis H. and Charles Dumars, "The Two-Tiered Market In Western Water," 57 Nebraska Law Review, No.2, 333 (1978).

Finnie, Bruce, "Elements of a Water Marketing Program," in EQC Ninth Annual Report: Montana's Water (Helena, MT: 1985): 101-108.

Fredericks, K. (ed.), Scarce Water and Institutional Change (Washington, D.C.: Resources for the Future, Inc., 1986).

Getches, David H., "Water Use Efficiency: The Value of Water in the West," 8 Public Land Law Review, 1 (1987).

Gilley, James R., "Potential Improvements In Irrigation Management Practices: Water Savings and Costs," Presentation to Conference titled "Western Water: Expanding Uses/Finite Supplies," Boulder Co., 1986.

Higginson, R. Keith and Jack A. Barnett, Water Rights and their Transfer in the Western United States, A report to the Conservation Foundation (Bountiful, UT: Higginson-Burnett, Consultants, 1984).

House, Verne W. and Mary Ellen H. Wolfe, "Policy Options for Conserving Water in Montana," Paper Presented to the Montana Section of the American Water Resources Association Annual Meeting in Butte, MT, October, 1986.

Howe, Charles W., Dennis R. Schurmeier, and W. Douglas Shaw, Jr., "Innovative Approaches to Water Allocation: The Potential for Water Markets," 22 Water Resources Research, No. 4, 439 (1986).

Keyes, Conrad G., Jr. and Tim J. Ward (eds.), Development and Management Aspects of Irrigation and Drainage Systems, Proceedings of the Specialty Conference Sponsored by the Irrigation and Drainage Division of the American Society of Civil Engineers (San Antonio, TX: ASCE, 1985).

Mann, Dean, "Institutional Framework for Agricultural Water Conservation and Reallocation in the West: A Policy Analysis" in Water and Agriculture in the Western U.S.: Conservation, Reallocation, and Markets, Gary Weatherford (ed.), (Boulder, Co.: Westview Press, 1982): 10-52.

McKnight, Faye, "Memorandum to Curt Martin Re: State Water Plan - Water Use Efficiency," March 24, 1988.

Metzger, Phillip C., "Options for Protecting Social Values in Western Water Transfers Out of Agriculture," (Washington, D.C.: The Conservation Foundation, 1987).

Montana Department of Agriculture, Montana Agricultural Statistics: 1987 (Helena, MT: 1987).

Montana Department of Natural Resources and Conservation, Montana Water Use in 1980 (Helena, MT: DNRC, 1986).

Moses, Raphael, "Keep the Farmer Farming — How to Eat Your Water Cake and Have It Too," Presentation to Conference titled "Western Water: Expanding Uses/Finite Supplies," Boulder, Co., 1986.

Pring, George W. and Karen A. Tomb, "License To Waste: Legal Barriers to Conservation and Efficient Use of Water in the West." 25 Rocky Mountain Mineral Law Institute, Art. 25, (1979).

The Public Agenda Foundation, Water Efficiency in the West: the Public's View, Report to the Western Governor's Association (New York: Public Agenda Foundation, 1986).

Sawyer, Stephen W., "State Water Conservation Strategies and Activities," 20 Water Resources Bulletin, No. 5, 679 (1984).

Sax, Joseph L., "Selling Reclamation Rights: A Case Study in Federal Subsidy Policy," 64 Michigan Law Review 13 (1965).

Schaab, William C., "Prior Appropriation, Impairment, Replacements, Models and Markets," 23 Natural Resources Journal, 25 (1983).

Shupe, Steven J., "Waste in Western Water Law: A Blueprint for Change," 61 Oregon Law Review, 483 (1982).

Shupe, Steven J., "Water Conservation Through Integrated Basinwide Implementation," Presentation to Conference titled "Western Water: Expanding Uses/Finite Supplies," Boulder, Co., 1986.

Stone, Albert W., Montana Water Law for the 1980s (Missoula, MT: University of Montana, 1981).

Stone, Albert W., 1988 Supplement Montana Water Law (Missoula, MT: University of Montana, 1988).

Tarlock, Dan, "The Changing Meaning of Water Conservation in the West," 66 Nebraska Law Review, 145 (1987).

Thompson, Bob, "A State Imposed Serverance Tax on Water: An Analysis of Legal Issues" in EQC Ninth Annual Report: Montana's Water (Helena, MT: 1985): 117-120.

Trelease, Frank J., "The Model Water Code, the Wise Administrator and the Goddam Bureaucrat," 14 Natural Resources Journal, 207-229 (April, 1974).

USDA Soil Conservation Service, Montana Irrigation Manual (Bozeman, MT: SCS, 1986).

USDA Soil Conservation Service, Montana Irrigation Guide (Bozeman, MT: SCS, 1986).

USDA Soil Conservation Service, Water Conservation and Salvage Report for Montana (Bozeman, MT: USDA, 1978).

U.S. Department of Commerce, Bureau of the Census, 1982 Census of Agriculture: Montana (Washington, D.C.: U.S. Gov't Printing Office, 1984).

Wahl, Richard and Frank H. Osterhoudt, "Voluntary Transfers of Water in the West," in USGS, National Water Summary 1985 (Washington, D.C.: U.S. Gov't Printing Office, 1986): 113-124.

Weatherford, Gary D., "Water Transfers and Exchanges: Using the Market to Improve Water Use — A Legal/Institutional View," Presentation to conference titled "Western Water: Expanding Uses/Finite Supplies," Boulder, Co., 1986.

Agricultural Water Use Efficiency TAC

Chuck Parrott, Hydrologist
U.S. Geological Survey
Fed Bldg, Drawer 10076
Helena MT 59626

Steve Slagle
U.S. Geological Survey
Fed Bldg, Drawer 10076
Helena MT 59626

Wally Jolly
Montana State Office, SCS
10 East Babcock St
Bozeman MT 59715

John Dalton
Montana State Office, SCS
10 E Babcock St
Bozeman MT 59715

Jack Sutphin
Missouri Region
U.S. Bureau of Reclamation
P.O. Box 2553, 36900
Billings MT 59103 7-6900

Loren Bahls
Water Quality Bureau
Dept of Health & Env Sciences
Helena MT 59620

Liter Spence
Fisheries Division
Dept of Fish, Wildlife & Parks
Helena MT 59620

Ron Guse
Water Rights
Dept of Natural Resources &
Conservation
Helena MT 59620

Steve Sando, Hydrologist
Dept of Natural Resources &
Conservation
Helena MT 59620

John Tubbs, Economist
Dept of Natural Resources &
Conservation
Helena MT 59620

Faye McKnight, Attorney
Dept of Natural Resources &
Conservation
Helena MT 59620

Joan Schumacher
Conservation Districts Division
DNRC
Helena MT 59620

Steve Schmitz
Water Development Bureau
DNRC
Helena MT 59620

Vicki Rieffenberger
Energy Division
DNRC
Helena MT 59620

Vern House
Extension Economist
Cooperative Extension Service
MSU
Bozeman MT 59717

Jim Bauder
Extension Soil Scientist
Cooperative Extension Service
MSU
Bozeman MT 59717

Dick Bruskern
Dept of Civil & Ag Engineering
2nd Floor Cobleigh Hall, MSU
Bozeman MT 59717

Bob Thompson
Environmental Quality Council
Capitol Station
Helena MT 59620

George Ochenski, Chairman
Drought Task Force
P.O. Box 689
Helena MT 59624

Lorents Grosfield, Chairman
MACD Water Resources Committee
Melville Route
Big Timber MT 59011

John Thoreson
Attorney-At-Law
P.O. Box 1185
Helena MT 59624

Jo Brunner
Montana Water Development
Association
Route 1 Box 284
Power MT 59468

Jerry Nypen
Route 1
Fairfield MT 59436

Keith Kelly, Director
Dept of Agriculture
Helena MT 59620

Bob Fagerburg
505 Avenue K
Powell WY 82435

Weatherford, Gary D., "Thematic Overview of the Conserve-And-Transfer Strategy of Water Management" in Water and Agriculture in the Western U.S.: Conservation, Reallocation, and Markets, Gary Weatherford (ed.), (Boulder, Co: Westview Press, 1982): 3-9.

Western Governors' Association, Water Efficiency Working Group, Water Efficiency: Opportunities for Action (Denver: WGA, 1987).

Western States Water Council, Proceedings of the 4th Annual WSWC Water Management Symposium, Boise, Idaho, 1987.

Wilkinson, Charles F., "Western Water Law in Transition," 56 University of Colorado Law Review, No. 3, 317 (1985).

Williams, Stephen F., "The Requirement of Beneficial Use as a Cause of Waste in Water Resource Development," 23 Natural Resources Journal, 7 (1983).

FEDERAL HYDROPOWER LICENSING AND STATE WATER RIGHTS

State Water Plan
Issue Paper Number 4

Water Resources Division
Department of Natural Resources
and Conservation
Helena, Montana

April 29, 1988

TABLE OF CONTENTS

I. THE ISSUE

A. The Problem
B. Background
C. Significance
D. Goals and Objectives

II. EXISTING POLICIES, PROGRAMS, AND PRACTICES

A. FERC Decision-making Process
   1. Consultations
   2. Interventions
   3. Comprehensive State Water Plans
   4. Amend the Federal Power Act
B. Montana Water Law Administration
C. Summary

III. DISCUSSION OF OPTIONS

A. FERC Decision-making Process
   1. Consultation
   2. Intervention
   3. Administration
   4. Litigation
   5. Legislation
   6. Negotiation
   7. Protected Areas
B. Montana Water Law Administration
   1. Preemptive Authority of FERC
   2. Timing of Water Permit Applications
   3. Imposition of Minimum Stream Flow Requirements

IV. SUMMARY OF OPTIONS

V. BIBLIOGRAPHY

VI. APPENDIX

A. Proposed Amendments to the Federal Power Act

I. THE ISSUE

A. The Problem

Under the Federal Power Act (FPA) (16 USC 791, (1982)), the Federal Energy Regulatory Commission (FERC) licenses developers to construct hydropower projects throughout the United States, including Montana. Prior to licensing any hydropower project, FERC is required to develop a comprehensive plan "for improving or developing a waterway or waterways, for the use or benefit of interstate or foreign commerce, for the utilization of water power development, and for other beneficial public uses" (16 USC 803(a) (1982)). While FERC should consider all relevant information in developing a comprehensive plan, including state water management objectives, they generally operate on a case-by-case basis without much coordination or consultation with the state. Moreover, following the U. S. Supreme Court decision in First Iowa Hydro-Electric Cooperative v. Federal Power Commission, 328 U.S. 152 (1946), FERC is not bound by state laws or policy in determining the number and location of hydropower projects to license within a state. Not only does FERC's authority to site hydropower dams preempt all state decision-making on that issue, but FERC also contends it is not required to take into account the state's prior appropriation system. This relationship between FERC and the state has frustrated the state's attempt to manage its water resources in several ways, including: (1) the inability of the state to optimize water use when a hydropower project has the effect of virtually foreclosing all upstream uses, and (2) the erosion of state authority to control and condition the use of water.

B. Background

The Constitution of the State of Montana provides that all waters within the boundaries of the state are the property of the state for the use of its people and are subject to appropriation for beneficial uses as provided by law. Until 1973, an appropriation of water could be accomplished by posting a notice at the point of diversion and filing in the county courthouse, or by simply putting the water to beneficial use. Since enactment of the Montana Water Use Act of 1973, an appropriative right requires a permit from the Department of Natural Resources and Conservation (DNRC). Among the beneficial uses of water recognized under Montana law is power, and Montana has a long history of water use for the production of hydroelectric power.

In the early 1900's, almost one-third of the United States' energy needs were supplied by hydropower production. Fears that the hydropower industry could be concentrated in the hands of a few major power companies led Congress to enact the Federal Water Power Act in 1920. The movement for federal control was supported by conservationists who argued that the practice of allowing private utilities to occupy dam sites in perpetuity at no charge amounted to a giveaway of the nation's water resources. They considered the resulting act a victory because it established federal regulation of water power projects, limited licenses to no more than fifty years, and provided for government to recapture the power at the end of the franchise.

The law was amended in 1935 to become the present Federal Power Act (FPA) which was administered by the Federal Power Commission (FPC) whose title was changed in 1977 to the Federal Energy Regulatory Commission (FERC). The Federal Power Act requires FERC to license any hydropower plant which: (1) is located on

federal land; (2) uses water impounded by a federal dam; (3) is located in or uses water from a navigable stream; or (4) produces power which affects interstate commerce. In passing the FPA, Congress could have explicitly preempted state water law through the Supremacy Clause of the U.S. Constitution, but it did not. Rather, it seemed to create a balance between federal and state governments. While requiring a license from FERC, Congress also included two sections in the FPA that reserved the application of state water law. Section 9 (b) requires each applicant for a federal license to submit:

> satisfactory evidence that the applicant has complied with the requirements of the laws of the State or States within which the proposed project is to be located with respect to bed and banks and to the appropriation, diversion, and use of water for power purposes and with respect to the right to engage in the business of developing, transmitting, and distributing power, and in any other business necessary to effect the purposes of a license under this chapter.

In addition, Section 27 states:

> Nothing contained in this chapter shall be construed as affecting or intending to affect or in any way to interfere with the laws of the respective States relating to the control, appropriation, use, or distribution of water used in irrigation or for municipal or other uses, or any vested right acquired therein.

A landmark interpretation of these provisions was made by the U.S. Supreme Court in First Iowa Hydro-Electric Cooperative v. Federal Power Commission, 328 U.S. 152 (1946). In that case, the Court held that the FPC could license a project even though the applicant was in violation of Iowa laws requiring a state permit to build a dam and prohibiting the dewatering of a river. The Court interpreted Section 27 as referring primarily to proprietary rights created under state law and later in Portland General Electric Co. v. FPC 328 F.2d 165, 176 (9th Cir. 1964) as assuring just compensation to holders of state-created water rights if those rights were taken as an incident to the exercise of a FPC license. The

Court's decision was based on four grounds: (1) to require an applicant for a federal license to secure a state license as a condition precedent to federal action would give the states veto power over projects that Congress intended the FPC to regulate; (2) it would subordinate to the states the comprehensive planning that Congress entrusted to the FPC; (3) a duplicate system of licenses would be unworkable; and (4) it would make the FPC the agent of the states for purposes of enforcing state laws.

Cases since First Iowa have approved construction of federally licensed projects regardless of conflict with state laws, and have thereby determined that licensing of hydropower projects is to be a federal function. State laws relating to the appropriation and use of water are preempted by the FPA. Also preempted are state land use laws and state utility siting laws as they might be applied to hydropower projects. However, state-created proprietary rights in water are preserved and any taking of those rights by a hydro project must be compensated.

The whole question of hydropower licensing would likely not have arisen without the 1973 oil embargo and its resultant energy crisis, which spurred Congress into enacting several laws that injected economic incentives into the development of alternative energy sources and stimulated the resurgent interest in hydropower. The Public Utilities Regulatory Policies Act of 1978 (PURPA) provided the principal economic incentive by encouraging the development of cogeneration and small power production facilities. PURPA's section 210 required public utilities to purchase power from small power production facilities at a rate not to exceed the "incremental cost to the utility of alternative electric energy", or, as required in FERC's regulations, at a rate

equal to the utility's "full avoided cost." In addition, the small hydro developers received tax credits amounting to 21 percent and a five-year depreciation schedule for the cost of capital investments. These incentives led to an increase in the number of applications to FERC for preliminary permits from 36 in 1978 to 1,859 in 1981. In Montana, some 75 applications were pending in the FERC process during 1983.

The major bone of contention with FERC is that a hydropower developer can acquire a preliminary permit and then a license without regard to state water law. FERC's position is clear: an applicant for a preliminary permit or license does not have to acquire a state water right prior to issuance of the license. In addition, the license may contain a special article allowing additional time to acquire all the state water rights necessary to operate the project. Once a preliminary permit is received, the permittee has a priority for receiving a license. If a license is issued, the licensee has the federal power of eminent domain and may condemn existing rights to acquire water for the project. Thus, a FERC licensee can be inserted into the water rights system without ever having to comply with state water laws. This is also true of those projects that are granted exemptions from licensing as provided under PURPA and the Energy Security Act of 1980.

Disruption of the state's prior appropriation system of water rights is just the obvious and fundamental effect of FERC's disregard of state policies, procedures, and laws. A more specific effect centers on the establishment of minimum instream flows. Under the provisions of the Fish and Wildlife Coordination Act (FWCA), FERC consults state and federal fish and wildlife agencies when considering issuance of a federal license or exemption for

development of a hydropower project. In many instances this consultation leads to the imposition of minimum instream flow requirements below a hydropower site, often in disregard of state law. Under Montana water law, the water reservation process provides the only means for the legal establishment of instream flow rights, which can only be obtained by a governmental entity. Without the legal protection afforded under state law, who is responsible for assuring maintenance of the flows required by FERC? Without a state-established instream flow right, it has been difficult for the state to provide legal protection for those instream flows required by FERC. With its few widely separated field offices and limited staff, it is doubtful that FERC has the capability to act as an enforcing entity.

Another problem with hydropower development is that some projects can completely foreclose future upstream water use by appropriating the entire flow at a certain point in the river. This could happen as a result of the appropriation system, when a hydropower developer applies for a permit to use all the unappropriated flow in a water course. In many states without statutory public interest criteria for acting on permit applications, such a request would have to be granted. The FERC license could also have this effect, if FERC hasn't fully considered the range of state water use plans. The result is frequently the effective foreclosure of future use of water for agriculture, municipal, and other consumptive uses above the licensed project. As demand for limited water supplies increases, the role of the state in controlling water allocation becomes more critical. Because of its knowledge of existing water use and water availability, the state is in the best position to exercise water management authority, but is frustrated by asserted federal preemption of this authority.

As previously mentioned, state water laws are not the only ones affected by the FPA. Montana has statutory authority for siting energy facilities under the Major Facility Siting Act. However, state siting acts are clearly preempted, thereby reducing the effectiveness of state planning and siting.

Many attempts have been made to cooperate with FERC and establish some synchrony to the dual systems of federal and state authority. Most attempts have been rebuffed or totally ignored. Consequently, there is a significant duplication of effort in evaluating the development of each hydropower project and assessing its environmental, economic, and social impacts. Then, to assure that the state's assessment and concerns are considered in the process, the state must formally intervene in licensing proceedings at an additional cost. Fiscal responsibility alone would suggest that there must be a better way.

C. Significance of the Issue

FERC's process of reviewing and licensing hydropower projects in Montana preempts the state's ability to coordinate the development of such projects. The siting of major hydropower projects and the use of large quantities of water occurs with inadequate consideration by FERC of significant state-level policies and concerns. The state can present local mitigation strategies only by intervening in the FERC proceedings (which is extremely costly and time consuming), and has very little opportunity to monitor FERC's decision-making process. Once a project is authorized by that agency, the state is left to deal with the social, economic, and environmental impacts related to a hydropower project. In addition, while both the state and FERC require environmental assessments prior to the final decision, there is rarely, if ever, coordination between the two agencies. This results in costly and duplicative

studies, often with unrelated time frames. Under FERC's current licensing process, it is nearly impossible to ensure that findings of state environmental assessments are incorporated into the decision-making process. Often, by the time the state completes its studies, FERC has made a final decision into which the state had little or no input.

Finally, FERC's process of licensing hydropower projects without considering state policies and concerns threatens the state's sovereign right to manage and optimize the use of water within its boundaries. Existing FERC practices frustrate attempts to develop and implement a comprehensive state water plan, including long-term, integrated strategies for water and power development, irrigation, water use efficiency, and environmental protection.

4. Goals and Objectives

The state's role in hydropower development can be derived from the policy statements incorporated into the water laws of the state. In Section 85-1-101 MCA, the legislature declares that:

> The state. . . .shall coordinate the development and use of the water resources of the state so as to effect full utilization, conservation, and protection of its water resources (Section 85-1-101(3), MCA).
>
> The public interest requires the construction, operation, and maintenance of a system of works for the conservation, development, storage, distribution, and utilization of water. . . . (Section 85-1-101(6), MCA).
>
> It is necessary to coordinate local, state, and federal water resource development and utilization plans and projects through a single agency of the state government, the department of natural resources and conservation (Section 85-1-101(7), MCA).
>
> The greatest economic benefit to the people of Montana can be secured only by the sound coordination of development and utilization of water resources with the development and utilization of all other resources of the state (Section 85-1-101(8), MCA).

Based on these statutory policy directives, the goals and objectives of the state with respect to FERC hydropower licensing and state resource management efforts are:

(1) To assure that FERC's licensing and re-licensing decisions are consistent with state resource management decisions, including the appropriation of water, siting of the facility, protection of fish and wildlife, and maintenance of water quality;

(2) To maximize state influence on hydropower development in Montana while recognizing the federal government's interest in coordinating hydropower development throughout the region;

(3) To assure that FERC's decisions comply with the state's comprehensive water plan; and

(4) To assure that FERC decisions regarding water allocation are fully reflected in Montana's water rights system.

II. EXISTING POLICIES, PROGRAMS, AND PRACTICES

In trying to address the problems federal preemption poses for licensing of hydropower projects, the DNRC has taken two approaches. One is an effort to influence FERC's decision-making process. The other is an attempt to adapt Montana laws to accommodate the FERC process. Both approaches are discussed below.

A. FERC Decision-making Process

There are three possible FERC decisions for a hydropower project application. The project can be licensed as proposed, licensed with modifications, or FERC can deny a license. The federal hydropower process also exempts certain small projects from licensing requirements, although conditions of that exemption will be enforced by FERC. Nearly all of the projects proposed for development in Montana require compliance with FERC licensing or exemption procedures.

1. Consultation

FERC's December 1985 edition of "Application Procedures for Hydropower Licenses, License Amendments, Exemptions and Preliminary Permits," commonly known as the "Blue Book," describes a consultation process, the results of which provide a basis for analyzing environmental and natural resource management aspects of a proposed project, and identifying problems that should be considered in the FERC's licensing procedures. FERC requires the consultation process as an initial step in compliance with the Fish and Wildlife Coordination Act (FWCA), the Endangered Species Act (ESA), the National Historic Preservation Act, and other federal statutes. According to FERC, consultation helps to ensure the preparation of acceptable applications and expedites the final interagency consultation process as required by the FWCA and the ESA.

FERC requires that the pre-application consultation be complete and documented so that the information contained in the application will be specific, accurate, and sufficiently quantified to convey a precise description of the project, including the environmental resources to be affected, and the proposed protective, mitigative and enhancement plans.

Under a three-stage process, FERC requires license and exemption applicants to consult adequately with appropriate agencies, including those involved with fish and wildlife management. Initially, applicants must contact all appropriate agencies and provide each of them with specific, detailed information, to the extent available, concerning the project, including maps, engineering design, operational mode, affected environmental and mitigation plans, and streamflow data. Applicants should seek the agencies' advice as to potential impacts and what studies may be necessary to assess the effects of the project on the area's natural and socioeconomic resources.

During the second stage of consultation, applicants must perform any reasonable studies necessary for FERC to make an informed decision on the application. Studies must be conducted prior to filing an application if the results: (1) would influence the economic or technical feasibility of the project; (2) are needed to determine the design or location of project feasibility; (3) are needed to determine the impacts of the project on important natural or cultural resources; (4) are necessary to determine suitable mitigation; and (5) are necessary to minimize impacts to a significant resource. The results of any necessary studies must be provided to each agency along with a draft application. Applicants must respond in the draft application to any comments and recommendations made by agencies during the initial stage. Applicants must

provide consulted agencies 30 or 60 days, depending on the type of application, in which to respond to the development plans. These time periods begin only after the applicant has informed the agencies of its general plans and submitted all the required studies. The applicant must prove to FERC that omitted studies were unnecessary. In regard to exemption applications for small projects, specified federal and state fish and wildlife agencies have the exclusive authority and responsibility for protecting fish and wildlife resources. Therefore, those agencies must determine which studies must be completed before they can review such applications.

The third stage of the process consists of the application being filed with FERC and served on each of the consulted agencies. Any subsequent revision, amendment, or supplement also must be provided to each agency. Documentation that all three stages of the process have been satisfied must be included in the application, as well as any agency letters containing comments, recommendations, or terms and conditions.

Until passage of the Electric Consumers Protection Act of 1986 (ECPA), the state agencies that could expect to be consulted under FERC's process included the Department of Fish, Wildlife, and Parks (DFWP) (FWCA and ESA), the Department of Health and Environmental Sciences (DHES) (under Sec. 401 Water Quality Certification), Montana Historical Society (National Historic Preservation), and the Department of Public Service Regulation. There was no requirement for consultation with the state agencies responsible for water management, water rights administration or energy facility siting. However, ECPA amends Section 10(a) of the FPA to require under Section 10(a)(2)(B) that FERC consider the

"recommendations of federal and state agencies exercising administration over flood control, navigation, irrigation, recreation, cultural and other relevant resources of the state in which the project is located...."

2. Interventions

The ability of the state to coordinate with FERC is hampered by the physical location of FERC headquarters in Washington, D.C. Even though FERC has a regional office in Portland, Oregon, access and information are no more readily available and all the major decisions are still made in Washington, D.C. Often, by the time the state receives notice of a FERC action or proposed action, the decisions are all but made. To ensure standing in the FERC decision-making process, the state may have no alternative but to formally intervene in the process. Even then, it is sometimes difficult to contact FERC staff who are knowledgeable about the status of an intervention, the issues raised by the state, or just the fact that the state has intervened.

The DNRC, DRWP and DHES review all orders and notices issued by FERC. Development of a data base has been initiated to list each proposed project, its status in the FERC licensing or exemption process, and its status in the various state permitting procedures. Where conflicts occur or have the potential to occur, the lead state agency petitions to intervene with FERC.

The DNRC is an active intervenor on large projects that should fall under the Major Facility Siting Act, that could foreclose a reasonable level of upstream consumptive-use development, or that otherwise conflict with state water management activities including water right permitting. Interventions have been filed for amendment proposals at Thompson Falls and Milltown dams and for the licensing of Tiber Dam.

3. Comprehensive State Water Plans

In deciding whether to license a hydropower project, FERC has always been required to ensure that the proposed project is "best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce, for the improvement and utilization of water power development, and for other beneficial uses" (16 USC 803(a) (1982)). The Supreme Court has interpreted this section of the FPA as requiring FERC to explore "all issues relevant to the public interest" (Udall v. Federal Power Commission, 387 U.S. 428, 450 (1967).

When FERC acts on an application for a hydropower license, the entire record developed during the process of evaluating the application constitutes the "comprehensive plan." Thus, the record consists of issues and concerns raised by the applicant, the FERC staff, intervenors, commenting federal, state, and local agencies, and other concerned parties. FERC is supposed to integrate and balance the various public interests and values identified during the application process to ensure that any project it licenses will optimize the utilization of the waterway for beneficial public purposes.

In 1982, the State of Maine took a bold step to assert some control over hydroelectric development. On July 6th of that year Governor Brennan signed an executive order declaring that the state's policy was to prohibit new hydroelectric development on those rivers that had the highest value for other beneficial public uses, including recreation (Comprehensive Hydropower Plan, 1982; Maine Rivers Study, 1982). The order also directed the preparation of a comprehensive plan for the use and development of Maine's rivers, and the submission of the plan to FERC. The plan, as prepared, included the following

components: (1) the governor's executive order; (2) The Maine Rivers Study, an inventory and identification of those rivers with the highest public value for boating, fishing, and natural resources; (3) an analysis of the need for electricity generated by hydropower to meet projected demand for 1990 and 2000; and (4) a statewide fisheries plan.

The plan was submitted to FERC in October, 1982. FERC refused to be bound by the plan or the state's policy that certain rivers should have no new hydroelectric development.

The Electric Consumers Protection Act of 1986 (ECPA), (P.L. 99-495) now requires FERC to consider the extent to which a proposed hydropower project is "consistent with a comprehensive plan (where one exists) for improving, developing or conserving a waterway or waterways affected by the project that is prepared by--(i) an agency established pursuant to federal law that has the authority to prepare such a plan; or (ii) the state in which the facility is or will be located" (16 USC 803(a)2(A)).

FERC views the legislative history of 16 USC 803(a)(2)(A) as indicating that, for state plans to be within the scope of that section, two criteria must be satisfied. First, the state plans must be prepared and adopted pursuant to a specific act of the state legislature, and developed, implemented, and managed by the appropriate state agency. FERC adopted this interpretation in Fieldcrest Mills, Inc. and further stated that the plans must reflect the preparers' own balancing of the competing uses of the waterway. These criteria reflect FERC's conclusion that a comprehensive state water plan under 16 USC 803(a)(2)(A) should, like comprehensive planning under 16 USC 803(a)(1), take into account and balance all uses relevant to the public interest.

In a recently proposed rule responding to the ECPA amendments for state water plans, FERC states that many of the plans currently submitted consider only one or a few uses of the waterway (Order No. 481, October 20, 1987; 18 C.F.R. Part 2). According to FERC, they do not provide conclusions based on a balancing of energy needs, potential economic growth, and other issues that FERC considers part of its 16 USC 803(a)(1) analysis. FERC also asserts that these plans are not accompanied by the substantial factors, studies, and technical evidence necessary to allow FERC to fully understand or independently confirm the state's conclusions. Consequently, FERC must often derive its own conclusion without the benefit of the state's views on all of the aspects included in FERC's comprehensive analysis.

In the same rule, FERC sets forth some guidelines for preparing state water plans. Recognizing that each waterway is unique, and thus realizing that it is difficult to establish specific criteria to follow in developing a comprehensive plan in all cases, FERC nevertheless believes, based on its experience in reviewing a number of plans, that it is possible to establish general guidelines for developing state water plans. According to FERC, the more closely a plan conforms to these guidelines, the more weight it will have on FERC's decisions.

In addition to the two criteria cited above, a comprehensive plan should contain the following: (1) a description of the waterway or waterways that are the subject of the plan, including pertinent maps detailing the geographic area of the plan; (2) a description of the significant resources of the waterway or waterways; (3) a description of the various existing and planned uses for these resources; and (4) a discussion of goals, objectives, and recommendations for improving, developing, or conserving the waterway or waterways in relation to these resources.

The plan should also describe significant resources in the area and contain, among other things: (1) navigation; (2) power development; (3) energy conservation; (4) fish and wildlife; (5) recreational opportunities; (6) irrigation; (7) flood control; (8) water supply; and (9) other aspects of environmental quality. The description of existing and planned uses of the waterway or waterways should include the items listed above as well as a description of currently unused areas of the waterway and any future plans for these areas. The plan should also address the advantages and disadvantages associated with each planned use.

In establishing goals, objectives, and recommendations for improving, developing, or conserving the waterway or waterways, the plan should contain an examination of how the different uses will promote the overall public interest, a statement as to the goals the plan expects to achieve, and an analysis of how the specific recommendations of the plan further these goals. A description of the methodology used in developing the plan should also be included.

If a state water plan does not qualify as a comprehensive plan under 16 USC 803(a)(2)(A) and its supporting rules, FERC will nevertheless consider the plan as it considers all relevant studies and recommendations in its analysis pursuant to 16 USC 803(a)(1). FERC's definition of a comprehensive plan does not, therefore, serve to include some plans and exclude others in FERC deliberations, since all such plans are taken into account. However, the weight to be accorded any information or recommended action, whether or not it is contained in a comprehensive plan, depends on the documentation that supports it. In this regard, FERC wishes to provide guidelines with respect to what type of plan will carry the most weight in its licensing decisions.

Although FERC provides some guidelines on what is considered to be a state water plan, there is still the question how the state water plan will be incorporated into FERC's licensing process. In many respects, FERC's licensing process is like a "black box." While states and other interested parties provide input to FERC regarding the location and impact of hydropower projects, there is no way to monitor how these inputs are weighed and balanced. Consequently, the state must guess at the logic of FERC's decision-making process. If FERC will not consider the state water plans any differently than they have considered state water management objectives in the past, there may be little reason to develop plans for this purpose.

While there are a variety of other reasons to develop a state water plan, it is not at all clear that FERC's expectations will be consistent with Montana's emerging state water plan. Given the traditional water planning philosophy from which FERC operates, it is not unlikely that their vision of a state water plan is the reconnaissance-level, comprehensive river basin plan promoted by the U. S. Water Resources Council during the 1970s. If this is the case, FERC will likely have problems with Montana's state water plan.

Clearly the first phase of Montana's state water plan does not satisfy FERC's criteria for weighing and balancing competing water uses. The first phase of the state water plan is not designed to make trade-offs among competing water uses. Rather, it is designed to establish a policy framework leading to more site-specific decisions that may provide more guidance to FERC.

Once this first phase of the state water plan is complete, the second phase, as currently envisioned, will weigh and balance competing uses, make trade-offs, and attempt to prioritize and optimize water use within river basins. While it is not exactly clear how this basin-wide planning will proceed, it is almost certain that it will not follow the model set by the reconnaissance-level studies. Rather, it will likely use existing data bases on water supply, demand, and use; assess the water and related land values within the basin; and through a public participation and consensus-building process establish priorities for water use within each basin. Whether or not FERC will accept this type of water plan remains to be seen.

4. Amend the Federal Power Act

Several bills were introduced in Congress during 1985 to address inadequacies in the FPA. Senators Wallop and Johnston introduced S. 426 to clarify questions of municipal preference. Senators Evans and Metzenbaum offered a substitute bill which highlighted other issues, including fishery mitigation and recognition of state comprehensive plans. Montana proposed amendments to S. 426 that would have required federal hydroelectric licensing to specifically defer to state water law. However, the bill was voted out of committee before the amendments could be offered. Instead, an oversight hearing was held before the Senate Energy and Natural Resources Committee on September 12, 1986, during which several states and interests raised the central issue of state and federal conflicts in hydroelectric licensing.

In response to these Congressional activities, the Montana Department of Natural Resources and Conservation in close coordination with the Western States Water Council and other state and interstate organizations, developed an action plan

for ensuring that state authority, responsibility, and decisions are reflected in FERC hydropower licensing procedures. The objectives of the plan are (1) to ensure that FERC's hydropower licensing and relicensing decisions are consistent with state laws and regulations relating to hydropower development (e.g., appropriation of water and facility siting) and also with state laws concerned with mitigating any adverse effects of hydroelectric licensing (e.g., facility siting, fish and wildlife protection, water quality permitting, and environmental decisions); (2) to ensure a system is developed that is flexible enough to fit the needs of each state's unique regulatory framework (riparian, appropriative, or mixed doctrines) and geographic concerns; and (3) to ensure the process developed does not interfere with existing intrastate agency jurisdictions.

The plan contains legislative, regulatory, and judicial remedies to require FERC compliance with state decisions in the hydropower licensing process. The proposed legislative remedies call for amending the Federal Power Act to clarify that each state may through its law grant water rights, or otherwise regulate as appropriate the siting of hydropower facilities within its boundaries, thereby incorporating state decisions directly into the FERC authorization process (e.g., state environmental, mitigation, siting, water quality and quantity permitting, or other regulations affecting hydropower development). In addition, the legislative remedies are designed to ensure that FERC may override any state decisions if there is clearly a need to protect the national interest. Thus, the goal is to retain an appropriate measure of state control over hydropower development while retaining and recognizing a superseding federal interest for overall coordination of the national waterways. The action plan also recommends that any amendments to the Act should preserve the

protection already provided under the Electric Consumers Protection Act of 1986 for fish and wildlife and water quality. Finally, the legislative remedies, as outlined in the action plan are designed to assure that any pertinent legislation provides for applicants to pay states a fee to be used for reasonable state costs incurred in setting terms and conditions, or pursuing other aspects of the states' role in the FERC licensing process. A copy of the proposed amendments to the FPA is attached to this paper as Appendix A.

The proposed amendments are currently on hold awaiting an expression of interest in Congress to reopen the FPA. Meanwhile, the Western States Water Council has decided to wait and see if the Rock Creek case in California (Rock Creek Limited Partnership, Project No. 3189-014) either overturns or modifies the First Iowa decision. In the interim, the Council will continue to refine the proposed amendments.

B. Montana Water Law Administration

Since 1973, Montana has had a formal statutory system for granting and subsequently administering water rights for a wide array of beneficial uses. Founded in the prior appropriation doctrine, the guiding statutes clearly acknowledge hydroelectric power generation as a legally beneficial use of water. Thus, hydroelectric activity is not thwarted by Montana water law so long as the specific developments comport with the statutory criteria for the granting of a water right.

As discussed earlier in this paper, the First Iowa and subsequent court decisions have relegated state water appropriation statutes to the status of a poor second cousin to the Federal Power Act. The foundation of this

circumstance is the dual licensing authority of the state and federal governments, and the decisions to preempt conflicting state laws by the superior federal authority. Therefore, in FERC's view the conditions attached to a state water right must not frustrate those prescribed by a federal hydropower license or similar entitlement. In turn, Montana is faced with administering a water appropriation system that, in certain instances, is not compatible with the federal hydropower authorization process. Although steps are being taken to address this fundamental problem, the needed changes have not been made and it may be some time before they occur, if ever.

Over time, FERC has maintained that an applicant for a federal hydropower authorization does not have to first obtain a Montana water use permit. The state would prefer to have the developer seek a Montana water right first and, if granted, have the conditions of the right asserted in the FERC licensing proceeding. Unfortunately, this is rarely the circumstance as hydropower project developers submit their state water right applications at any time before, during, or after the federal authorization process. The situation is confounded by the fact that the FERC process is competitive and there may be more than one water right applicant for a given site.

In the face of these circumstances, the department has adopted a policy of acting on hydropower water use permit applications, regardless of the project's standing in the federal process. If more than one permit application for a site is received, they will be processed in priority date order and only one water right will be granted. If the party holding the right does not receive the requisite FERC approval, it will be faced with an inability to perfect its right and the permit will be subject to revocation or termination. In contrast, the

party ultimately holding the federal authorization is not confronted with this problem and, once having applied (or reapplied) for the water use permit, is in a strong position to receive the state right.

As the department becomes aware of new hydropower development proposals, the sponsor is provided information on the need for a state water use permit (if application has not been made). During the process of acting on water use permit applications for hydropower projects, the department adheres to the decision making criteria specified in Montana water law. If a hydropower project were found to have an adverse effect on the rights of existing Montana appropriators, the permit would either not be issued or conditioned as necessary to protect those rights. This is not to say, however, that preexisting water users would be completely immune from effects of the hydropower proposal. In accordance with the Federal Power Act, the federal licensee acquires condemnation powers that extend to proprietary rights that otherwise are protected by the operation of state water law. The only recompense afforded under federal law is the right of compensation for injury to vested water rights. To date, there have been no instances where the condemnation of state water rights has taken place and the probability of it occurring seems remote. Likely the costs of purchasing rights to the large volumes of water needed to operate a hydropower project have proven to be prohibitive.

Perhaps the most perplexing issue surrounding hydropower development and water rights adminstration centers on the maintenance of minimum instream flows below a dam or point of diversion for a project. Such flow requirements result from provisions of the FERC rules requiring conditions for the protection, mitigation, and enhancement of fish and wildlife affected by the development,

operation, and management of a project (16 U.S.C.A. 803(j)). Although the the state may agree that such provisions are appropriate, at times it may be difficult to legally protect the requisite streamflows from further appropriation under state law. This may be attributed to the fact that, in most instances, there are no state-recognized instream flow rights in place when a project receives the nod to proceed from FERC.

As a practical matter, instream flow protection is likely not an issue with most of the recent hydropower developments since they are proposed for mountainous areas where new competing uses are improbable. Nonetheless, there have been a few instances where the impact of future consumptive use was a matter of concern and the FERC-mandated instream flow was not protected under a state water right. Although the option to seek an instream flow reservation pursuant to Section 85-2-316 MCA was considered, the reservation process would not allow for the creation of the needed right in a timely fashion. Most power developers could not obtain a reservation for instream flows since private parties are not qualified applicants under the law. But, even if an instream flow reservation were granted, the rights for the turbine and the instream flows would not have the same priority dates. In turn, the hydropower developer is faced with the spectre of having intervening appropriations granted under state law that jeopardize its ability to comply with any instream flow condition of a federal license.

Power developers faced with a FERC-stipulated instream flow condition may seek water right protection for the flows involved. The department has set forth a protection strategy based on a court finding that all water right holders have a right to a reasonable means of diversion (see State ex. rel. Crowley v. District

Court, 108 Mont. 89, 88 p.2d23 (1939)). Under this approach, hydropower permittees are advised that instream flows are not included within the flow or volume on their permits. On the other hand, they may assert the right to protect the water necessary to utilize the appropriation right for the hydropower project as authorized by FERC. It follows then that, under natural low flow conditions, the hydropower appropriator may have to alter the normal diversion scheme for power generation in order to maintain the instream flow prescribed in the FERC authorization. Contrarily, if such low flow conditions were to result from the issuance of a new water use permit, the hydropower appropriator would assert the right to object and demand a hearing on the application. In the hearing, the permit applicant would have to show that the proposed appropriation would not unreasonably affect the means of diversion for the hydropower project. That is, the power producer would not have to reduce diversions to the turbines in order to offset reductions in instream flows brought about by the new appropriation.

Since 1985, the state has had another means to deal with a FERC instream flow condition. The approach is founded in an amendment to the water permitting statutes that provides for the special consideration of large appropriation requests—those involving flows over 5.5 cubic feet per second and volumes exceeding 4,000 acre-feet per year (see Section 85-2-311(3) MCA). In evaluating such applications, the department must find that the proposed use is reasonable on the basis of several statutory criteria, including one which pertains to minimum streamflows needed for the preservation of aquatic life. If the appropriation, as proposed, does not conform with those criteria, the department may condition the permit to assure they are satisfied (see Section 85-2-312(1) MCA). Since most hydropower projects require water amounts exceeding the

threshold size criteria, the water permit applications are subject to the reasonable use evaluation. Thus, if minimum instream flows were determined a needed ingredient of a project by either the state or FERC, the department could condition the project's permit in a manner that provides for these flows. In turn, if future appropriators jeopardize the ability to meet the instream flow condition, the permittee would have a basis under Montana law upon which to object.

While such conditioning may result in the hydropower user leaving a certain amount of water instream, may question the legal status of such a condition. Although it is clear that such a condition does not establish a water right for instream use, it might have the same effect if it is enforceable as against any future appropriators. If the instream flow condition is not enforceable, it is likely to be relatively ineffective in protecting instream values. Clarifying the legal status of such conditions may be needed to assure the efficacy of this water management tool.

C. Summary

The state has been trying to influence FERC's decisionmaking process by using FERC's consultation procedure; by actively intervening in FERC's licensing, relicensing, and exemption proceedings; by negotiating with those hydropower producers holding current licenses; by developing comprehensive state water plans that must be considered by FERC in its process; and by drafting possible amendments to the Federal Power Act to restore the traditional Congressional deference to state water law. In the area of state water rights administration, the DNRC has adopted a policy of acting on hydropower water use permit applications in order to expedite the issuance of the permit to the party

receiving the FERC license. The department also provides information on the need for a state water use permit to new hydropower developers as soon as they become known. In addition, every effort is being made to protect minimum instream flows as prescribed in the FERC license or exemption. However, none of the actions taken to date have fully resolved the conflicts in hydropower licensing.

III. DISCUSSION OF OPTIONS

As in the previous section on existing policies, programs, and practices, this section on options will concentrate on the two areas of conflict that are believed susceptible to change. If the conflict between FERC hydropower licensing and state water law administration is to be resolved, changes must be made in the way FERC operates or in the state laws, and perhaps both.

A. FERC Decision-Making Process

1. Consultation

Encourage FERC to expand the consultation process to include state water management, water rights administration, and facility siting agencies. This would be in keeping with the ECPA amendments requiring FERC to consider the recommendations of federal and state agencies exercising administration over flood control, navigation, irrigation, recreation, cultural and other relevant resources of the state in which the hydropower project is located.

2. Intervention

Routinely petition to intervene whenever an application is filed with FERC. The intervention should provide a complete analysis of the effect the project will have on all existing and future water uses. The analysis will consider all social, economic, and environmental concerns and should meet the requirements of a comprehensive state water plan as defined under ECPA.

3. Administration

As proposed by a Montana task force to the Western States Water Council (WSWC) and adopted by the Council in July, 1987, this approach would promote cooperation and coordination between the states and FERC through the modification of FERC procedures by influencing administrative rules and regulations required under the National Environmental Policy Act (NEPA) and ECPA.

An adjunct to modifying FERC's process through rules and regulations concerns an Executive Order (EO) on Federalism signed by President Reagan on October 26, 1987. This EO is designed ". . .to restore the division of governmental responsibilities between the national government and the states that was intended by the Framers of the Constitution to ensure that the principles of federalism established by the Framers guide the Executive departments and agencies in the formulation and implementation of policies. . .". The EO outlines fundamental federalism principles, establishes federalism policy-making criteria, sets out special requirements for preemption and legislative proposals, and provides for implementation of the order by each Executive department and agency. Essentially the Order is telling the Executive departments and agencies to defer to the states unless they have express constitutional and statutory authority supporting any federal action that would limit the policymaking discretion of the states. Through the WSWC, FERC was asked to describe how it is responding to, and complying with this Executive Order. FERC replied that it is not an executive agency bound to implement the Executive Order, but believes that its hydropower licensing program is being administered consistently with the spirit of the order.

4. Litigation

Litigation is another component of the three-prong approach adopted by the WSWC, this would require the Council and its members to identify, monitor, and support all hydropower related court cases with the potential to overturn First Iowa. One such case now pending is Rock Creek in California. In Rock Creek, FERC set one level of instream flow while the California Water Resources Control Board required in the water use permit a higher level. When California's petition for rehearing was denied, California appealed directly to the Ninth Circuit Court where a decision is expected within the next year. California has requested amicus support through the WSWC and anticipates that the case will go eventually to the U. S. Supreme Court. Because of the belief that the case will ultimately be decided in the Supreme Court, California has cautioned against active pursuit at this time of the legislative approach to conflict resolution. California's reasoning is based on the belief that, if proposed amendments are introduced, the Supreme Court will refuse the case because a legislative remedy is pending in Congress.

5. Legislation

Montana and the WSWC have proposed that Congress amend the FPA to (a) clarify the intent of Congress to require compliance with state water laws; (b) allow state regulation of siting hydropower projects; (c) incorporate state decisions directly into the FERC process; (d) maximize state control over hydropower development, while retaining and recognizing a federal interest for overall coordination of the national power supply; and (e) preserve the existing protection for fish, wildlife, and water quality. There has also been interest in amending the FPA to eliminate FERC from licensing hydropower projects, or to limit FERC licensing to projects above a certain generating capacity.

Another approach might be modification of a proposal (HR 3593) by Congressman Richard Lehman of California to amend the Federal Land Policy and Management Act (FLPMA). Section 501(a) of FLPMA authorizes Secretaries of Agriculture and the Interior to grant rights-of-way for electric systems of generation and distribution on FERC-licensed projects on federal reservations and public domain lands. Under existing practice, the U. S. Forest Service (USFS) always issues rights-of-way for projects which FERC licenses without exercising any independent judgment as to whether or not a right-of-way should be issued. While some judgment may be exercised as to how such projects should be conditioned, the USFS 1987 Hydroelectric Handbook states that all hydroelectric projects licensed by FERC on National Forest Lands will be issued special use authorizations. Only the Chief of the USFS may make exceptions to this policy. Like the FS, the Bureau of Land Management (BLM) rights-of-way are essentially a rubber stamp of the FERC process and even conditioning of projects is worked out rather informally.

Under HR 3593, USFS and BLM rights-of-way for nonfederal hydro projects on federal land would not be a rubber stamp of FERC decisions to license projects, but would be issued under FLPMA only if construction and operation of such projects:

a. is in the public interest;

b. is consistent with the appropriate USFS or BLM management plans; and

c. has public benefits that exceed harm to natural, cultural, scenic, recreational, watershed, fish, and wildlife values.

If the proposed project meets the above conditions, the right-of-way is subject to terms and conditions which will protect natural resource values of both USFS and BLM lands. In the processing of such rights-of-way, public participation in the local area is mandatory, including public notice of application and public meetings. Environmental reports prior to the issuance of a right-of-way must be prepared by the agency with jurisdiction over the land surface or by an independent contractor retained by that agency. In no case will the hydro project developer be allowed to prepare the environmental analysis.

Essentially, HR 3593 would give veto authority over FERC-licensed hydro projects on federal lands to the land management agencies. If enacted, it could pave the way for the states to pursue amendments to the FPA that would provide the same deference to state water rights administration and facility siting prerogatives.

6. Negotiation

In 1982, the Idaho Supreme Court ruled that the Idaho Power Company (IPC) held water rights to 8,400 cfs of water at its Swan Falls Dam on the Snake River. The ruling essentially closed the Snake upstream to future appropriation for all water uses. In addition, many water users could have lost their water if IPC had demanded the 8,400 cfs flow during summer months. After some two years of negotiations including IPC and the Idaho Governor and Attorney General, a settlement was reached. Among other provisions, the agreement called for a water rights adjudication of the Snake River Basin, a public interest review of new upstream appropriations by the Idaho Department of Water Resources, and relinquishment of IPC's 8,400 cfs right in exchange for guaranteed minimum flows of 3,900 cfs from April 1 to October 31, and 5,600 cfs from November 1 to March 31 (compared to the previous minimum flow requirement of 3,300 cfs).

Implementation of the negotiated settlement required FERC approval and amendment of IPC's Swan Falls Project license. Without the FERC approval, IPC would be subject to ratepayer suits over failure to protect its water rights. This could also lead to revocation of the IPC power license, unless FERC had approved. In view of these concerns, the state and IPC petitioned FERC to amend the license and incorporate the terms of the agreement. When FERC failed to respond in nearly two years, Congress directed FERC to approve the agreement by amending a 1986 bill which the President subsequently vetoed. The Idaho delegation reintroduced the measure as HR 519, a bill signed by the President on December 29, 1987. Even in the face of this explicit Congressional directive, FERC took until March of this year to grant its approval. Regardless of the fact that it took nearly six years for Idaho to reach a negotiated settlement at Swan Falls and have it approved by FERC, Montana should seek negotiated settlements at those hydropower sites that appear to have foreclosed future upstream development. This could be done as part of FERC relicensing decisions or during the state adjudication process.

7. Protected Areas

The Northwest Power Planning Council (NPPC) is currently conducting hearings that could lead the Council to rulemaking for the purpose of designating protected areas. If protected areas are included in the Fish and Wildlife Program and the Power Plan authorized by the Northwest Power Act (NPA) they would provide the following benefits:

a. Help protect investments in fish and wildlife rehabilitation in the Columbia River Basin.

b. Provide clearer signals to potential developers on the importance of fish and wildlife resources in the region and help focus developers' attention on less sensitive areas.

c. Provide useful information to FERC so that its hydropower decisions can reflect the region's interest in quality development and environmental protection.

According to the NPPC staff, protected areas designations are not zoning classifications that prevent or permit hydropower development. Rather, they establish standards to be applied by federal agencies with obligations under NPA. The Bonneville Power Administration (BPA) would be obligated to act consistently with the protected areas designation generally, and specifically in regard to BPA acquisitions of power resources. BPA, FERC, the Corps of Engineers, the Bureau of Reclamation, and any other federal agencies that manage, operate, or regulate hydropower facilities in the Basin would have to take the protected areas designation into account "to the fullest extent practicable." In the case of FERC, these obligations would be confirmed by ECPA.

Section 10 of the NPA preserves the rights of states to make energy facility siting decisions and to exercise control over their waters. Under Section 10 of the FPA, as modified by ECPA, FERC is required to ensure that hydropower projects are:

[B]est adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce, for the improvement and utilization of water-power development, for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat), and for other beneficial public uses, including irrigation, flood control, water supply, and recreational and other purposes. . . .

FERC has determined that the NPPC Fish and Wildlife Program and Power Plan are comprehensive plans for purposes of this section. If protected areas, properly specified, are included in the plans as proposed, the plans may have greater weight in the FERC licensing process. DNRC input to the NPPC rulemaking for protected areas designation may then provide an important tool for the state in hydropower siting and water management within the Columbia Basin region of Montana.

B. Montana Water Law Administration

Resolving the conflicts between the Federal Power Act and Montana water law is an activity that will doubtlessly require time. Until a resolution is at hand, the state must continue to administer its appropriation statutes and, at the same time, adhere to a consistent and legally defensible policy regarding the federal hydropower authorization process. Clearly, the department policies and actions regarding hydropower water rights are founded in the law. At the same time, there may be optional and legally defensible means of confronting the problems posed by the Federal Power Act and its administration. Those problems as discussed earlier are varied and generally involve the asserted preemptive authority of FERC, timing of water permit applications, and the imposition of

minimum stream flow requirements. The optional means of dealing with these problems, although not exhaustive, represent a range of activity needed to address these problems. They are meant to form a basis for discussion and not offered as firm policy recommendations.

1. Preemptive Authority of FERC

A consideration fundamental to any of the options discussed herein is whether the state, in administering the Montana Water Use Act of 1973, should give way to actions of FERC. FERC has continually asserted that the First Iowa decision and its progeny have rather forcefully defined the relationship between federal hydropower decisions and those made under state law. Currently, the very foundation of these decisions is being challenged by the State of California in the matter of the Rock Creek Limited Partnership project. Now before the U.S. Ninth Circuit Court of Appeals, California disagrees with the First Iowa conclusions and contends that Section 27 of the Federal Power Act mandates a FERC licensee to fully comply with all aspects of a state water right.

Cognizant of these actions, the department has the option of dealing with hydropower water permit applications as it has during the past several years and seek to conform with FERC decision making. This would allow continued action on the pending permit requests without having to prepare for an ultimate showdown with FERC if a disagreement exists. On the other hand, there may be question if this stance will allow a reconsideration of granted hydropower water permits if the Rock Creek case is decided in favor of the State of California. In view of the small number of permits that would be involved, it seems unlikely that this would be a significant matter of contention.

As an alternative to the current approach, the state may wish to pursue the option of simply not acknowledging any federal preemption, a posture that has certainly been tendered before various courts. There are those who may contend that the legal basis for such an option however, seems tenuous in view of the court findings which continually sustain the preemptive powers of the Federal Power Act. Thus, until a sound test case, such as that being pursued by California, overturns First Iowa, the state may be faced with a difficult battle if it advocates a firm state's rights stance when juxtaposing state water right administration with the federal hydropower authorization process.

2. Timing of Water Permit Applications

During the course of seeking a federal hydropower authorization, a developer is not obligated to provide evidence of having obtained a state water right. As a result, a state water use permit may be sought at any time during the federal process. Further, since more than one developer may be seeking the federal entitlement for a given site, the department may be confronted with acting on several water permit applications. As a final consequence, the developer awarded the state water right may not be the party receiving the go-ahead from FERC.

In order to deal with this circumstance, the department is currently pursuing the administrative option of processing permit applications for a site on a first-come, first-served basis. If the party issued the water permit fails to receive the needed blessing from FERC, the federal licensee may then seek the water use permit. The drawback to this approach is that the water permit holder, although having no ability to perfect the right, may object to the permit application of the federal licensee and forestall department action on

the latter request. As a practical matter this may not be a problem since FERC allows licensees a period of five years to acquire the property rights--including water rights--as needed to construct and operate their projects. This includes those rights that must be obtained through the condemnation power granted under the Federal Power Act (Lebow 1985).

Another means to deal with the timing issue, and one likely requiring legislative direction, is to defer action on all water use permit applications for a site pending final action by FERC. Once that decision is made, the department would proceed with acting on the permit application for the party licensed by FERC. The other application(s) would not be granted since the lack of a federal authorization makes it impossible to put the requested appropriation(s) to beneficial use. This approach has the advantage of allowing the department to fully consider and, as needed, accommodate any applicable FERC conditions in its deliberations on the water permit application. The obvious shortcoming is that the department may frequently fail to process the water permit applications in a timely fashion and may be forced by court action to proceed.

3. Imposition of Minimum Stream Flow Requirements

As a condition to its hydropower authorizations, FERC frequently prescribes conditions regarding the preservation of instream flows. In view of the asserted preemptive effect of the Federal Power Act, the department has sought to address such flows when acting on applications for hydropower water use permits. As described earlier, this has involved placing an explicit acknowledgment in the permittee's file that, like all water right holders, the hydropower developer has the right to a reasonable means of diversion. Since

the developer may wish to protect instream flow conditions specified by FERC, the flows may be asserted as being part of the appropriative right for the project.

A drawback to this option is that a specific instream flow value is not entered into the Montana water rights record system and, therefore, the FERC stipulation may be missed by the department when acting on new permit applications. Overcoming this potential shortcoming would involve establishing a special record code that triggers a special review of the permit files when processing new appropriation requests in stream reaches affected by FERC instream flow stipulations. A variation to this option would be founded on the simple recognition that state law may not frustrate federal purpose. Therefore, in issuing a water use permit for a hydropower proposal, the department would grant a right for a quantity of water that encompasses the flows needed for power generation as well as those specified by FERC for the protection of instream resources. Such an action may require a statutory amendment since instream flow rights may only be held by public entities.

Under Montana law, water reservations, as provided by Section 85-2-316 MCA, are the primary means of establishing rights to instream flows. In contrast with permitted rights, rights created as water reservations have a priority from the date of the board order granting such reservations. Since the reservation process requires time to complete, intervening water use permit applicants may gain a priority date to flows needed in fulfilling the purposes of a requested reservation. In the case of a FERC-authorized power project, this could result in depletions to the required instream flow.

Allowing new consumptive appropriators to develop flows that, by federal fiat, are intended for instream purposes could be risky business. Using the asserted preemptive power of the FPA, the hydropower developer may be able to successfully challenge the new uses, causing their curtailment and loss of the attendant development expenses. Therefore, in order to effectively use reservations for protecting instream flows specified by FERC, it would be necessary to amend the law such that a reservation's priority would be the date of application. With this change, which could be specific to FERC-mandated instream flows, a qualified reservant would apply for the reservation soon after FERC renders a decision requiring instream flow protection. Since reservation applications require considerable supporting information, it would also be necessary to allow the applicant time to finalize its application even though the initial filing would be sufficient for purposes of obtaining a priority date. Such a dispensation may also require a statutory revision.

In passing the Water Use Act of 1973, the Montana Legislature clearly recognized that water may be appropriated for fish, wildlife, and recreational purposes. The legislature was equally clear in specifying that water use permits may not be issued for such uses. As provided in Section 85-2-102(1) MCA, the appropriation of water by means of a permit requires the development of physical works to "divert, impound, or withdraw" the desired water. Since instream uses rarely require such diversion facilities, they do not meet the legislature's basic test for the issuance of a permit. However, with most hydropower projects, a case may be made for using the same provisions of law to recognize FERC-specified instream flows as an element of a state permitted water right.

Most hydropower projects being proposed for Montana assume two basic forms. The first involves the use of penstocks integrated into a large dam structure for conveying flows to a downstream power house. The other type of project is usually much smaller in scale and requires the installation of a diversion structure across a stream that directs flows to an offstream penstock. The penstock, which is separate from the diversion facilities, runs alongside the stream and conveys flows to the downstream power house that, at times, may be several miles distant. After passing through the turbines, the water returns to the natural channel.

Instream flows downstream of a dam would be maintained by operations of spillway gates, the power turbines, or river outlet works. Operation of the instream diversion structure would sustain natural channel flows below the points of diversion for projects having the extended penstock design. Significantly, in either instance physical works are used to divert flows needed for instream resource protection. Thus, since the fundamental requisite for a permitted appropriation is met, the state should have a firm basis to include any FERC-specified instream flows in the appropriative right for most hydropower projects.

With the passage of the 1985 Water Policy Legislation, a legal mechanism was set in place that allows the department to deal effectively with FERC-imposed instream flow requirements. Under that enactment, the department may condition large new water rights—those involving appropriations exceeding 4,000 acre-feet per year and 5.5 cubic feet per second—as needed to satisfy specific reasonable use criteria. Since a consideration of instream flows is among those criteria, the department may incorporate federally stipulated instream flow requirements

in water use permits for new hydropower projects. For the most part, the size criteria used to define appropriations subject to this special consideration largely encompass the hydropower projects being proposed in Montana. Nonetheless, there may be smaller developments for which FERC has stipulated an instream flow condition. To accommodate such conditions, the statutory size criteria would either have to be reduced or the department would have to pursue one of the other options described earlier. On the other hand, if one acknowledges the preemptive force of the Federal Power Act, a state-imposed condition may require amendment if the FERC stipulation is issued after the water use permit is granted. Should this become a problem, it may be overcome by adopting an administrative policy under which hydropower water right applications are held in abeyance pending final FERC action. Such a stance may set the stage for mandamus actions requiring the department to act in a timely fashion. Yet, it may also be possible to obtain applicant concurrence since the intent of the policy is to facilitate adherence to a likely condition on its federal power authorization.

IV. SUMMARY OF OPTIONS

A. FERC Decision-Making Process

1. Encourage FERC to expand its consultation process to include state water management, water rights administration, and facility siting agencies.

2. Whenever an application is filed with FERC, the state could routinely intervene and in the process provide a complete analysis of the effect the project will have on all existing and future water uses.

3. Influence FERC administrative rules and regulations to promote better cooperation and coordination between the states and FERC.

4. Identify, monitor, and support all hydropower related court cases that have the potential to overturn First Iowa.

5. Have Congress amend the Federal Power Act to (a) clarify the intent of Congress to require compliance with state water laws; (b) allow state regulation of siting hydropower projects; (c) incorporate state decisions into the FERC process; (d) maximize state control over hydropower development, while recognizing a federal interest to coordinate the national power supply; and (e) preserve the existing protection for fish, wildlife, and water quality.

6. Negotiate with hydropower producers holding FERC licenses that have threatened or foreclosed future upstream development. The resultant agreements should provide a certain level of future development.

7. Support designating protected areas, as proposed by the Northwest Power Planning Council, to protect investments in fish and wildlife resources, help developers focus on less sensitive areas for development, and provide useful information to FERC.

B. Montana Water Law Administration

1. In administering Montana's water appropriation statutes, sustain the policy of deferring to actions of the Federal Energy Regulatory Commission (FERC) that are taken pursuant to the Federal Power Act.

2. In administering Montana's water appropriation statutes, do not defer to actions of FERC that are taken pursuant to the Federal Power Act. If conflicts between state and federal decisions arise, pursue court action as needed to resolve such disputes in favor of the state.

3. Where multiple water use permit applications are received for hydropower development at a given site, process such applications in priority date order and grant the permit to the first applicant meeting the criteria of Montana's Water Use Act. If the party holding the permit fails to receive the needed FERC authorization, grant a second permit to the federal licensee.

4. Where multiple water use applications are received for hydropower development at a given site, defer granting a water use permit pending final action by FERC. Grant the permit for hydropower water use at the site to the party ultimately receiving the federal power license.

5. Allow holders of hydropower water rights to comply with federal instream flow stipulations, by acknowledging that such flows are protectable under state law because the hydropower appropriator has the right to a reasonable means of diverting flows for both power production and instream resource protection. A variation of this option would be to include the volume and flow of water used for instream purposes in the Montana appropriative right.

6. Amend Montana's water reservation statute so as to allow reservations granted for the purpose of recognizing FERC-stipulated instream flows to have a priority that corresponds with the date of application.

7. Where FERC-stipulated instream flows are regulated by specific diversion works, include such flows in the appropriative right for a hydropower project and consider them protectable under the normal operation of Montana water law.

8. Reduce the size criteria for appropriation requests subject to evaluation under the statutory reasonable use criteria as a means to assure that FERC instream flow stipulations on any hydropower project may be accommodated under Montana's water permitting statute.

BIBLIOGRAPHY

Duda, James C., "The 'Comprehensive Plan' Requirement of the Federal Power Act: a Senator's Dream, a Congressional Mandate, and a Parameter for Agency Discretion," Boston College Law Review 28 (1987).

Higgins, Susan, "State of Montana Efforts to Monitor Activities of the Federal Energy Regulatory Commission" (Montana Department of Natural Resources and Conservation, Helena, MT, July 1986).

Lebow, Lawrence N., "Hydropower Permitting and Licensing Procedures of the Federal Energy Regulatory Commission and their Relationship to State Water Laws in the West" (a presentation to the Western States Water Council, January 10, 1985).

Mack, Jan R., "Proposed Hydroelectric Policy" (Montana Department of Natural Resources and Conservation, Helena, MT, April 1987).

Montana Department of Natural Resources and Conservation for the Western States Water Council, "Action Plan for Ensuring that State Authority, Responsibility, and Decisions are Reflected in Federal Energy Regulatory Commission Hydropower Licensing Procedures" (June 1987).

Northwest Power Planning Council, "Protected Areas Designation," (Staff Issue Paper, October 1987).

Vencill, Betsy, "Comment: The Federal Power Act and Western Water Law--Can States Maintain Their Own Water Use Priorities?" Natural Resources Journal 27 (1987).

Water Resources Division of the Department of Natural Resources and Conservation, "Federal Hydropower Licensing and the Montana Water Use Permitting Process, Draft" (Montana Department of Natural Resources and Conservation, Helena, MT, July 1984).

Western States Water Council, "Position of the Western States Water Council Concerning Federal Energy Regulatory Commission Licensing and State Water Rights" (April 22, 1983).

Western States Water Council, "Statement by the Western States Water Council on Proposed Amendments to the Federal Power Act" (submitted to the Senate Energy and Natural Resources Committee on September 12, 1986).

Wolfe, Lawrence J., "Hydropower: FERC Licensing and Emerging State-Federal Water Rights Conflicts," in Proceedings of the Twenty-ninth Annual Rocky Mountain Mineral Law Institute (Mathew Bender and Company, Inc., New York, NY, 1984): 851-897.

APPENDIX A

PROPOSED AMENDMENTS TO THE FEDERAL POWER ACT

PROPOSED AMENDMENTS TO THE FEDERAL POWER ACT

ANNOTATIONS TO PROPOSED AMENDMENTS

(as presently amended by S. 426, the "Electric Consumers Protection Act of 1986")

SECTION 1. SHORT TITLE AND TABLE OF CONTENTS.

(a) SHORT TITLE.--This Act may be cited as the "Federal Power Act Amendments of 1987."

(b) TABLE OF CONTENTS.--

Sec. 1. Short title and table of contents.
Sec. 2. Deference to comprehensive state water plans and state water law.
Sec. 3. Amendments to Section 21 of Federal Power Act.
Sec. 4. Effective date.

SEC. 2. DEFERENCE TO COMPREHENSIVE STATE WATER PLANS AND STATE WATER LAW.

(a) AMENDMENTS TO SECTION 10 OF THE FEDERAL POWER ACT. Section 10 (a) of the Federal Power Act (16 U.S.C.§ 791(a) et seq.) is amended as follows:

(1) Insert "facility siting" after "irrigation" in subparagraph (2)(B).

[This amendment assures state facility siting agencies, where they exist, will be properly consulted.]

(2) Insert the following sentence at the end of subparagraph (2)(B): "An applicant must pay under this section or any other applicable section the required state fees necessary for the study of the proposed project and its potential impacts."

[This amendment makes clear that states will be able to collect the fees necessary for studying proposed projects to the extent provided for under state law.]

(3) Insert the following new subparagraph (D) to paragraph (2) of subsection (a):

"(D)(i) In addition to consideration of the above, and recognizing reasonable latitude in the nature of state plans and variations of issues from state to state, FERC must honor a state certification of consistency or inconsistency with a state approved comprehensive water plan from any state in which water planning gives equitable consideration to the purposes of energy conservation, the protection, mitigation of damage to, and the enhancement of fish and wildlife (including related spawning grounds and habitat), the protection of recreation opportunities, and the preservation of other aspects of environmental quality in addition to the power and development purposes of this act, unless:

[This amendment requires that FERC defer to individual comprehensi state water plans where those plans at a minimum consider what are recognized to be important planning criteria.]

"(I) the Commission can demonstrate that the state plan has ignored major issues which should have reasonably been considered in reaching such a certification; or

"(II) the Commission demonstrates and documents an overriding national interest consideration and votes unanimously that such overriding national interest consideration supersedes the certification of consistency or inconsistency with a state approved comprehensive water plan.

[These amendments allow FERC to reject a state plan where major issues were ignored by a state or where there is an overriding national interest at stake, but in both instances the burden is on FERC to justify rejecting a state water plan.]

"(ii) In conjunction with the state certification of a comprehensive state water plan, the state must demonstrate that:

"(I) the state has developed the plan in accordance with this title, after notice, and with the opportunity of full participation by relevant

[These amendments guarantee that state water plans will be developed after a public process allowing participation by all interested parties, pursuant to state law with approval by the Governor.]

Federal agencies, State agencies, local governments, Indian tribes and other interested parties public and private;

"(II) the state has held public hearings in the development of the plan;

"(III) the plan and any changes thereto have been reviewed and approved by the Governor; and

"(IV) the state has the authorities necessary to implement the plan.

"(iii) A state may amend its plan at any time, but any amendment is subject to the requirements of clause(ii);

"(iv) A state in which a project is proposed has within 90 days of receipt of a copy of an application for a license to notify the applicant whether the state intends to study the application for certification under the state's approved comprehensive water plan. If a state fails within that 90 days to notify the applicant of the state's intention, the conclusive presumption will be made that the state does not intend to study the application for certification under the state's approved comprehensive water plan and this subparagraph will not apply.

[This amendment allows an applicant to know in a timely manner whether it will be subject to a state's comprehensive water plan.]

This subparagraph does not abrogate any of the protections provided for by subsection (j) of this section."

[This amendment is intended to make clear that all fish and wildlife protections recently included in the Electric Consumer's Protection Act of 1986 (ECPA) are left intact. State plans are to be honored by FERC, but all state plans are still subject to the recently enacted fish and wildlife protections.]

(b) STATE WATER LAW. --Section 10 of the Federal Power Act is amended by adding the following at the end:

"(k) Not withstanding any other provision of law, the commission shall not issue an original or new license, amendment to a license, or exemption from licensing under this part, unless the applicant proves acquisition, in accordance with substantive and procedural provisions of state law, of the necessary rights established pursuant to state law to appropriate, divert, develop, and use water including the payment of required state fees necessary for the study of the proposed project and its potential impacts.

[This amendment makes compliance with state water law a conditio of a license, but this recogniz the recently enacted fish and wildlife protections of the ECPA. In essence, a license applicant must comply with the ECPA fish and wildlife protection requirements and obtain a state water right. Possession of state water right, therefore, does not guarantee the ability to exercise the right and go forward with the project. A FERC license is still required, and fish and wildlife protection is required for the FERC license. Conversely, compliance with FERC's fish and wildlife protection requirements does not guarantee a project will proceed because a state water right is still necessary. A provision allowing for a Congressional override of state water law when the national interest is at state was considered, but was rejected since Congress always has the plenary authority to override state wat law.]

"(l) Nothing in this subsection shall be construed as conferring upon the United States, its agents, permittees, or licensees any right to acquire rights to appropriate, divert, develop, or use water.

[This amendment provides that a water right can be obtained only according to state law and that these amendments are not intended to infer any right to appropriate to any entity.]

"(2) Pursuant to its authority under Article I, Section 8 of the Constitution, Congress delegates to the states authority to regulate the appropriation, diversion, development, and use of water in accordance with this Act, and the exercise of this authority by the states shall not be deemed to be an impermissible burden on interstate commerce.

[This amendment prevents any licensee from successfully arguing before a court that obtaining a state water right impermissibly burdens commerce, since Congress can constitutionaly delegate to states the power to regulate water.]

"(3) Nothing in this subsection shall alter in any way a provision of state statutory law, decisional law, or regulation, or of any interstate compact, governing the appropriation, diversion, development, or use of water."

SEC. 3. AMENDMENTS TO SECTION 21 OF FEDERAL POWER ACT.

Section 21 of the Federal Power Act is amended by adding the following at the end:

"The Commission is not empowered to authorize a licensee to exercise the power of eminent domain pursuant to this section for the purpose of acquiring water rights."

[This amendment assures that the state process for acquiring water rights remains intact despite federal condemnation powers for land].

SEC. 4. EFFECTIVE DATE.

Except as otherwise provided in this Act, the amendments made by this Act shall take effect with respect to each license, permit, or exemption issued under the Federal Power Act after the enactment of this Act.

TECHNICAL ADVISORY COMMITTEE
FEDERAL HYDROPOWER LICENSING
AND STATE WATER RIGHTS

Gordon Aycock
Bureau of Reclamation
P. O. Box 36900
Billings, MT 59107-6900

Morris Brusett
Northwest Power Planning Council
Capitol Station
Helena, MT 59620-0805

Corps of Engineers
Missouri River Division
P. O. Box 103, Downtown Station
Omaha, NE 68101

Dave Darby
Dept. of Natural Resources
and Conservation
1520 East Sixth Avenue
Helena, MT 59620-2301

James D. Davies
Western Area Power Administration
P. O. Box EGY
Billings, MT 59101

Alan Davis
Energy Division
Dept. of Natural Resources
and Conservation
1520 East Sixth Avenue
Helena, MT 59620-2301

Jim Follensbee
Central Montana Electric Power
Cooperative, Inc.
P. O. Box 50085
Billings, MT 59105

Pete Gross
Potosi Power
P. O. Box 261
Pony, MT 59747

Tim Hall
Dept. of Natural Resources
and Conservation
1520 East Sixth Avenue
Helena, MT 59620-2301

Randy Moy
Bonneville Power Administration
Drawer 10061, Federal Building
316 South Park
Helena, MT 59626

Larry Peterman
Fisheries Division
Department of Fish, Wildlife & Park
1420 East Sixth Avenue
Helena, MT 59620

Ron Schofield
Helena Valley Irrigation District
3840 North Montana Avenue
Helena, MT 59601

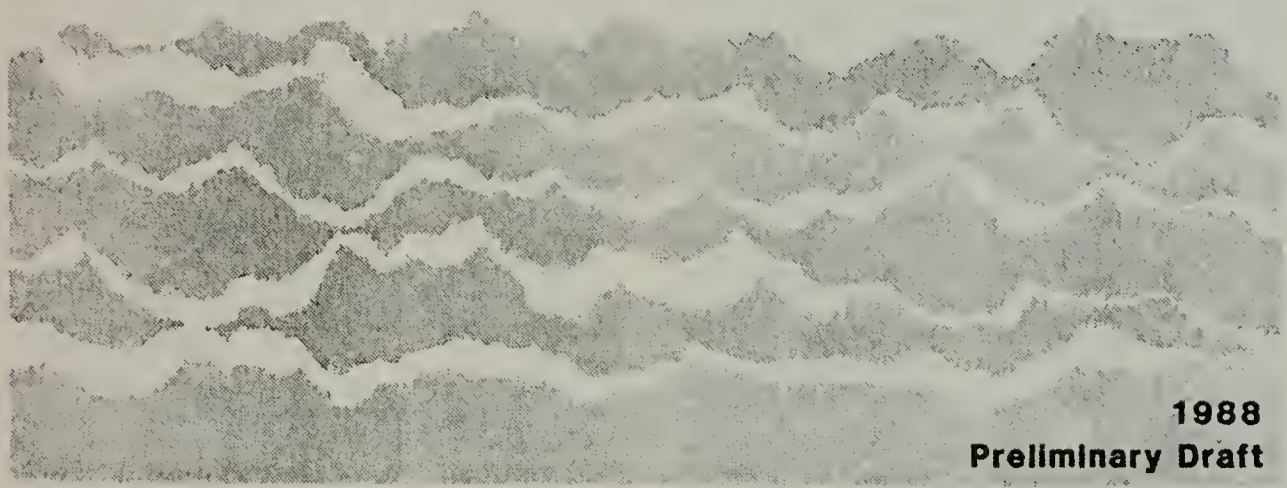
Bob Scott
Water Rights Bureau
Dept. of Natural Resources
and Conservation
1520 East Sixth Avenue
Helena, MT 59620-2301

Roger Woodworth
Washington Water Power Co.
P. O. Box 3727
Spokane, WA 99220

Mike Zimmerman
Montana Power Company
40 East Broadway,
Butte, MT 59701

MONTANA WATER PLAN

Management Section



1988
Preliminary Draft

Subsection: Instream Flow Protection

Introduction 2
Background 2
Policy Statement 2
Problems, Options, and Recommendations . . . 3
  Problems 3
  Options 3
  Recommendations 5
Plan Implementation 5
  Legislative Action 5
  Administrative Action 5
  Financial Requirements and Funding Strategies 6
  Time Schedule 6

WATER RESOURCES DIVISION DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

1520 EAST SIXTH AVENUE HELENA, MONTANA 59620-2301 (406) 444-6637

INTRODUCTION

Water uses can be differentiated on the basis of whether they involve withdrawing water from a source of supply. Offstream uses require diverting water from its natural watercourse. This withdrawn water is then either used and returned to the watercourse or completely consumed. By contrast, instream uses require that a specified level of flow be maintained in the natural watercourse.

The allocation of water in Montana has traditionally focused on satisfying offstream uses for domestic and commercial consumption, irrigated agriculture, industry, and mining. While these offstream uses remain critical to the growth and development of the state, there has been an increasing demand to leave water in the stream, unavailable for offstream diversion below a specified level, for fish, wildlife, recreation, and water quality. Montana law (Section 85-1-101(5), MCA) provides that "The water resources of the state must be protected and conserved to assure adequate supplies for public recreational purposes and for the conservation of wildlife and aquatic life." In addition, Section 75-5-101(1), MCA states that "It is the public policy of this state to conserve water by protecting, maintaining, and improving the quality and potability of water for public water supplies, wildlife, fish and aquatic life, agriculture, industry, recreation, and other beneficial uses."

Based on these and other statutory policies, natural resource management agencies are taking steps to protect instream flows through a variety of programs and practices. The purpose of this plan component is to identify problems with existing mechanisms for maintaining and enhancing instream flows, and to examine options and suggest solutions for these problems.

BACKGROUND

In 1969, the state took its first steps to legally allocate water for instream use. It involved the establishment of "Murphy Rights" on the unappropriated waters of twelve "blue ribbon" trout streams to maintain stream flows necessary for the preservation of fish and wildlife habitat (Section 89-801(2), RCM, 1947). In 1973, state efforts were expanded with the enactment of the Montana Water Use Act, which not only provided an opportunity to reserve water for future diversionary and consumptive uses, but also for maintaining instream flows (Section 85-2-316, MCA). To date, instream reservations have been established in the Yellowstone River Basin, with applications being prepared for the Upper Clark Fork and Missouri River basins. Several other streams have received instream flow protection pursuant to Section 85-2-223, MCA, which allows the Montana Department of Fish, Wildlife and Parks to represent the public in adjudication proceedings for purposes of establishing public recreational uses of water prior to 1973. Instream flows are also maintained on several streams by releasing water from reservoirs during critical times of the year. Finally, the Department of Natural Resources and Conservation (DNRC) may condition water use permits for large appropriations on the basis of reasonable use criteria, including the protection of instream flows (Section 85-2-311(2)(c), MCA).

In addition to state efforts to protect instream resources, federal agencies and tribal governments have also taken steps to ensure the maintenance of instream flows. The Wild and Scenic Rivers Act (16 U.S.C. 127) has been used to protect instream resources on the North, South, and Middle Forks of the Flathead River, and on one reach on the Missouri River. Federal land management agencies are studying the possibility of adding rivers to the wild and scenic river system, thereby protecting additional instream resources. Through its special use permitting process, the U.S. Forest Service also protects instream flows by denying or conditioning access to developers seeking to divert water within the national forests (43 U.S.C. 1761-1771 (1982)). The federal reserved rights doctrine may give federal resource management agencies and tribal governments another mechanism to manage instream resources. Finally, tribal governments, such as the Confederated Salish and Kootenai Tribes of the Flathead Reservation, are claiming aboriginal fishing rights to protect instream flows under their respective treaties with the United States.

Although the state of Montana has made significant progress in protecting instream flows, some of the existing programs and practices need refinement if they are to be effective. New legal and institutional mechanisms also may be needed to enhance instream resources in certain cases.

STATE WATER PLAN POLICY STATEMENT

Instream flows are an important use of water, and mechanisms should be developed and refined to protect and enhance instream resources. However, instream flow protection activities must not adversely affect existing water rights and should be weighed and balanced against alternative future uses of water.

PROBLEMS, OPTIONS, AND RECOMMENDATIONS

Problems

Five problems need to be addressed with respect to instream flow protection. The problems are:

1. Inadequate consideration of instream flow values in the water use permitting process.
2. Insecurity of instream water reservations.
3. Potentially insufficient quantity of water allowed for instream water reservations.
4. Threatened instream resources in dewatered basins.
5. The need for better information for instream resource management decisions.

Options

1. Permitting Process

The existing criteria for issuing a water use permit, as outlined in Section 85-2-311, MCA, may not adequately provide for the consideration of instream flow values. It is not clear whether the water permitting process allows for the consideration of instream flow values other than when instream flow reservations or similar instream water rights have been established. To date, many streams in Montana with important instream values do not have the necessary protection of an instream flow right. New consumptive use water permits continue to be processed and granted before instream flow reservations are established. Consequently, in certain areas of Montana, instream resources are incrementally degraded.

One option is to incorporate a provision into Section 85-2-311(1), MCA allowing public entities to object to new water use permits and changes of water rights on the basis of potential adverse effects on fish and wildlife resources, public recreational opportunities, and public health. This opportunity would only exist in cases where permits are applied for on streams or rivers without some type of instream flow right. If a public entity does object, it would accept the burden to show how and why the proposed permit would adversely affect the public values mentioned above.

The second option is to modify the reasonable use criteria provided by Section 85-2-311(2)(c), MCA, which are triggered only by applications for appropriations of water that exceed 4,000 acre-feet per year and involve diversion rates over 5.5 cubic feet per second. Because very few permits exceed this size threshold, instream values are rarely considered during the permitting process. The existing criteria could be modified by allowing them to be applied to any proposed new water use permit and any change or transfer in water rights. The result, in certain cases, would be to deny or condition new water use permits and changes or transfers in water rights by requiring the users to maintain a minimum level of flow in streams.

Option three is to promote more timely acquisition of instream flow reservations by assigning applicants a priority date at the time of application (instead of several years later when final reservation decisions are made). A "base" priority date would be established for all reservants at the time the first correct and complete application is submitted for any given stream reach. Once such an application is accepted, all parties with an interest in the stream would have the opportunity to submit competing applications within a specified time period. During the final reservation proceedings, the Board of Natural Resources and Conservation (BNRC) would also weigh and balance the reservation applications against water use permits granted since the base priority date. The BNRC could subordinate reservations to water use permits if the purpose of the reservations is not impaired.

Both options one and three are recommended. Option one allows the consideration of instream flow values where instream flow rights have not been established. Option three promotes a more timely acquisition of instream flow reservations.

2. Security Of Instream Reservations

The current reservation process does not provide much security to instream reservations. If the BNRC finds that the total amount of an instream flow reservation is not needed to fulfill its purpose, and a qualified applicant can show that its need outweighs the need of the instream reservation holder, the excess water may be reallocated to the competing applicant (Section 85-2-316(11), MCA). Such actions may not occur more than once every five years. Moreover, all reservations are to be reviewed at least once every ten years, and if the objectives of the reservation are not being met, the Board may extend, revoke, or modify the reservation (Section 85-2-311(10), MCA).

One option is to consider instream reservations perfected upon Board approval and eliminate the reallocation process and the ten-year review. While this option would improve the security of an instream flow reservation, it would eliminate the Board's ability to reallocate reserved water on the basis of new information, and changing social values, and needs.

The second option is to delete the ten-year review for all reservations put to beneficial use (and again consider instream uses perfected upon Board approval), but maintain the ability to reallocate water reserved for instream uses once every five years. This option would maintain the Board's ability to reallocate reserved water that is not put to beneficial use, as well as to reallocate water reserved for instream uses if it is not needed to fulfill the purpose of the reservation and a qualified applicant can show that its need outweighs the need of the instream reservation holder.

Option three is to evaluate the relative security of instream flow reservations after the BNRC completes its review of the Yellowstone River reservations in 1988. The evaluation would identify and assess problems associated with the security of instream reservations.

Option three is recommended because it will be difficult to evaluate the security of instream reservations, and thus determine what action is needed, without first going through the process of making a ten-year review.

3. Quantity of Water

A reservation for an instream flow currently cannot exceed 50 percent of the average annual flow on gauged streams (Section 85-2-316(6), MCA). According to resource managers, limiting instream flows to such levels may not be sufficient to protect instream resources in all cases.

The first option is to increase the maximum amount of water that may be reserved for instream use (e.g. up to 60 percent of the average annual flow). While this option would increase the quantity of water that may be appropriated by instream flow reservations. However, in certain cases, it may also constrain the protection of instream resources by arbitrarily limiting the amount of water that can be reserved for instream flow reservations. This option would prevent instream reservations from appropriating a majority of the water in a given stream.

Option two is to limit instream reservations to 50 percent of the average annual flow unless there is an overriding public concern. While in certain cases this option may increase the quantity of flows that could be reserved for instream flow protection, it may be difficult to define what constitutes an overriding public concern.

The third option is to eliminate the 50 percent ceiling and not constrain decision-making by the BNRC regarding applications for instream flow reservations. Instead, the Board would base its decision on the need for water for instream flows along with the relative value of competing water uses as is done with applications for consumptive water users.

Option three is recommended because it treats all reservations equally by allowing the Board to make decisions on the basis of need and the relative value of competing uses of water.

4. Enhancing Instream Flows

Instream resources are often threatened in streams that are regularly or periodically dewatered due to over-appropriation, drought, or both. The problem here is not how to maintain existing flow levels, but how to increase or enhance the flow levels in certain streams.

One option is to allow public entities to purchase, lease, or otherwise voluntarily transfer water rights from offstream or consumptive uses to instream uses. This would allow offstream water users to improve water use efficiency and to then legally transfer water that has been salvaged from the amount originally consumed to other uses, including instream uses. This option would also allow for the temporary, emergency transfer of offstream or stored water rights to protect instream resources in times of drought.

Another option is to encourage public entities to purchase or lease water stored in reservoirs above dewatered streams and to revise the operating procedures on such reservoirs.

Both options are recommended. Option one expands the ability of resource management agencies to increase flows in dewatered basins, while option two is currently an effective method of enhancing instream flows.

5. Information and Research

To improve the management of instream resources, information is needed in five areas:

a. The validation of instream flow quantification methods to determine if existing methods result in an appropriate amount of water for instream resources.

b. The development of methods to quantify instream flows necessary to maintain recreation scenic and aesthetic values.

c. The contribution of late season return flows to the maintenance and enhancement of instream resources.

d. The physical availability of water to meet the demands for instream resource protection.

e. The feasibility of inter-basin transfers and groundwater sources as alternative ways to enhance instream resources in dewatered basins.

Research is recommended in all five areas because they are all important to instream resource management.

Summary of Recommendations

The following options are recommended for each problem.

1. Allow objections to new permits and changes in water rights based on potential adverse affects on fish and wildlife resources, recreational opportunities, and public health if no instream flow right exists, and the objector accepts the burden of proving the adverse effects; and assign a base priority date for all reservants when the first correct and complete application is accepted for a given stream reach; allow submission of competing applications within a given time limit; and allow the BNRC to subordinate reservations to permits granted since the base priority date.

2. Evaluate the relative security of instream flow reservations after the ten-year review of the Yellowstone River reservations in 1988.

3. Delete all references to a cap on the amount of water that can be reserved for instream uses and base all reservations on need and the relative value of competing water uses.

4. Develop legal and institutional mechanisms to allow voluntary transfers from offstream uses to instream uses, and encourage reservoir management to enhance instream flows.

5. Conduct research on: instream flow quantification methods; the contribution of return flows to instream flow protection; the physical availability of water to enhance instream resources; the feasibility of inter-basin transfers and groundwater sources to enhance instream flows.

PLAN IMPLEMENTATION

Legislative Action

The legislature needs to adopt a provision in Section 85-2-311(1), MCA allowing public entities to object to new water use permits and changes in water rights on the basis of potential adverse affects on fish and wildlife resources, public recreational opportunities, and public health. This opportunity would exist only on streams where no instream flow water right exists, and requires the objector to accept the burden of proving the adverse effects.

The legislature will also have to revise Section 85-2-316(9), MCA to allow the BNRC to establish a base priority date for all reservants at the time the first correct and complete application is submitted for a particular stream reach; to define the time limit within which competing applications must be submitted; and to allow the Board to subordinate reservations to water use permits granted since the base priority date.

The legislature would also have to revise Section 85-2-316(6), MCA to eliminate the 50 percent ceiling on the amount of water that can be reserved for instream flows and allow the BNRC to establish instream flow reservations on the basis of need and the relative value of competing water uses.

Finally, the legislature would have to pass a statute, or at least clarify existing law, to allow the voluntary transfer of water from offstream uses to instream uses.

Administrative Action

To determine the relative security of instream flow reservations, the DNRC will, in cooperation with the Instream Flow Technical Advisory Committee,

evaluate both the five-year and ten-year review processes after the BNRC completes the Yellowstone River reservation review. The DNRC will prepare a brief report for the State Water Plan Advisory Council outlining the problems, options, and recommendations.

To facilitate research on the five areas outlined above, the DNRC will, in cooperation with the Instream Flow Technical Advisory Committee, prepare a brief report for the State Water Plan Advisory Council. The report will outline ongoing research activities in the five areas and describe specific research needs, potential researchers, financial requirements and funding strategies, and time schedules.

Financial Requirements and Funding Strategies

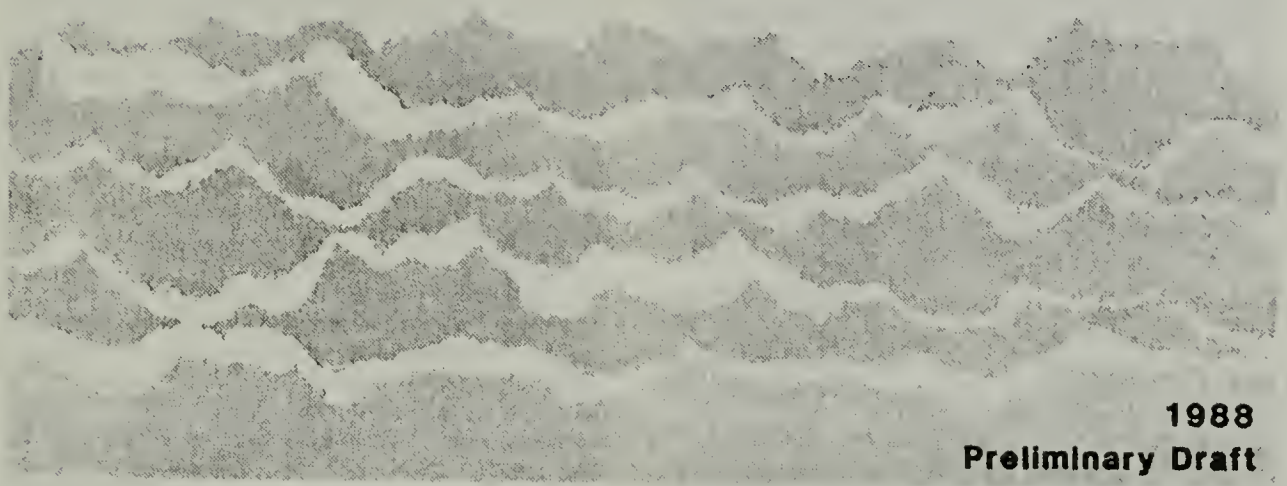
Funding may be necessary to conduct research on the five areas outlined above. As part of the report to the State Water Plan Advisory Council on information and research needs, financial requirements needed to support research projects will be identified, along with alternative funding strategies.

Time Schedule

Activity	Responsibility	Deadline
Development and Implementation Tasks		
1. Draft legislation	DNRC	January 1989
2. Enact legislation	State Legislature	April 1989
3. Evaluate security of instream reservations	DNRC	March 1989
4. Design research program	DNRC	June 1989

MONTANA WATER PLAN

Management Section



1988
Preliminary Draft

Subsection: Agricultural Water Use Efficiency

Introduction 2
Background 2
Policy Statement 2
Problems, Options, and Recommendations . . . 3
  Problems 3
  Options 3
  Recommendations 3
Plan Implementation 3
  Legislative Action 3
  Administrative Action 4
  Financial Requirements and Funding Strategies 5
  Time Schedule 5

WATER RESOURCES DIVISION DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

1520 EAST SIXTH AVENUE HELENA, MONTANA 59620-2301 (406) 444-6637

INTRODUCTION

Montana is viewed by many western states as being relatively wealthy in terms of its natural water supply. However, as most Montanans are aware, that supply varies from place to place and throughout the year, creating a situation of water scarcity in many parts of the state. Demand for water is growing and the future availability of water supplies is emerging as a major resource issue facing the state. One way to satisfy growing demands and avert problems of water scarcity is to increase water availability by improving the efficiency of agricultural water use. Improving the efficiency of agricultural water use will not only help satisfy future water needs, but also will provide these additional benefits:

1. Flows resulting from increased irrigation efficiency provide the opportunity for additional economic development in areas where water may not otherwise be legally or physically available.

2. Increased irrigation efficiency may increase irrigators' net income. This can occur if the benefits of more efficient water use--increased crop production and decreased operating costs--are greater than the investment cost involved.

3. Increased flows made available by more efficient irrigation can improve the ability of current water users to withstand drought.

4. Increased irrigation efficiency may have significant environmental benefits. Examples are reduced soil erosion, and increased flows for fish and wildlife purposes or water quality enhancement.

5. Increased irrigation efficiency may help meet the needs of current irrigators once the prior reserved water rights of Indian tribes and the federal government are quantified and put to use.

6. Increased irrigation efficiencies may be an important factor in any court action challenging water appropriations on the basis of the public trust doctrine. A program to increase flows in seriously dewatered streams through improved irrigation efficiency could be evidence that the state is seeking to meet its responsibility to the public.

7. Irrigation efficiency will be an important factor considered by the U.S. Supreme Court in any interstate water apportionment proceeding. The Court has indicated that a state's conservation efforts will be considered in determining its share of interstate water; states with lower efficiency water uses may have to provide for their future needs by improving those efficiencies rather than by taking a larger share of interstate supplies. Wasteful or inefficient uses will not be protected.

BACKGROUND

Irrigation accounts for most of Montana's consumptive water use and, thus, is the most obvious target for improved efficiency. Yet upon closer scrutiny, increasing irrigation efficiency in a basin is not as easy as it first appears. A number of highly complex and interrelated geographic, geologic, hydrologic, and economic factors beyond the irrigators' control are involved. Legal factors also play a substantial role because increasing the efficiency of one irrigator's system may have adverse effects on other water users.

Montana water law and policy are evolving. In meeting the challenges of developing the frontier, the goal of our water law has been to allow the orderly appropriation of the resource for producing economic wealth and, by carefully defining each appropriators' rights, to resolve conflict between users over limited water supplies. Yet the law does not reflect the fact that improvements in water use would be desirable over time, and that the values we place on our water resources could change. Today, more is being demanded from our water resources, and water laws and government institutions may have to change to meet these demands. By clarifying its water laws, the state can provide incentives for increased efficiency and, at the same time, protect existing water users from any adverse effects that otherwise might result.

STATE WATER PLAN POLICY STATEMENT

Voluntary improvements in agricultural water use efficiency that increase water availability should be encouraged. Where improvements in water use efficiency would adversely affect existing beneficial uses, such activities should not be allowed.

PROBLEM, OPTIONS, AND RECOMMENDATION

Problem

Montana's existing water management structure, including laws and administrative activities, does not always provide the incentives or information needed to improve the efficiency of agricultural water use.

Options

Six options or methods are available to help improve agricultural water use efficiency. The first is to improve education and research on opportunities for increasing agricultural water use efficiency. Both public and private efforts to keep irrigators informed of new conservation methods would be expanded. Additional research would be conducted on the applicability of innovative water conservation methods in Montana. Related research would be focused on identifying areas of the state where improvements in agricultural water use efficiency are most viable.

The second option is to provide direct government support for efforts that would result in increased irrigation efficiency. Funds are presently available through the state's water development loan and grant programs, which give some preference to "conservation" projects. The level of that support could be increased and a greater preference given to agricultural projects that improve water use efficiency. Such a preference may be justified because agriculture is by far the largest consumptive water user and a modest gain in agricultural efficiency would considerably improve water availability for all uses. In addition, funds could be sought through the federal Pick-Sloan Missouri Basin Program. Finally, a tax credit could be provided to persons who invest in water conservation measures.

The third option is to clarify the legal opportunities for water right changes and transfers, or moving water rights from one user to another. Direct transfers of whole water rights from one user to another are now possible, and conserved water may also be sold. For example, an industry or municipality needing water could ask a farmer to reduce his water consumption. In turn, the farmer could sell an amount of water equal to the reduction in his consumptive use to the industry or municipality. While transfers between offstream users are possible under law, it is unclear whether lease-type arrangements or transfers from offstream to instream uses are possible. The law could be amended to define what type of changes and transfers are allowed, and how existing uses will be protected.

The fourth option is to establish a water supply bank that would acquire water rights from willing sellers and then sell or lease the rights to that water for other new or existing uses. Because it is often difficult to find buyers for blocks of water when supplies become available from conservation measures, the state could create a self-financing program for acquiring and holding such water for future uses. Water rights would be purchased from willing sellers and then resold to new users at a cost sufficient to cover expenses associated with the original purchase.

The fifth option is for the state to regulate water in such a way as to improve water conservation. This could be accomplished by closing over-appropriated basins, thereby requiring improvements in water use efficiency to expand water use opportunities; more strictly enforcing waste and abandonment statutes; and/or requiring conservation plans as part of new permit applications.

The sixth and final option is to tax water use as an incentive for appropriators to use less water. A tax on water use could be structured in a variety of ways and could vary depending on the amount and type of use.

Recommendation

Agricultural water use efficiency should be improved by employing several of the options outlined above, including: (1) improving education and research; (2) seeking additional funding assistance for projects improving agricultural water use efficiency; (3) clarifying laws governing water right changes and transfers; and (4) regulating water use in cases where water is being wasted.

PLAN IMPLEMENTATION

Legislative Action

To provide effective government support, the legislature should adopt a resolution urging Congress to appropriate funds from the Pick-Sloan Missouri Basin Program to rehabilitate existing irrigation projects and improve supplies for municipal,

recreational, industrial, and rural domestic water uses.

To clarify the laws governing water right changes and transfers, the statutory definition of "appropriate" (Section 85-2-102(1), MCA) and Section 85-2-402(2)(b), MCA should be amended to allow the change and transfer of a private consumptive water right to a non-consumptive, instream flow right of a public agency. By clearly allowing such changes, the market for conserved water would be improved and instream flow uses would be on equal footing with other uses in the competition for scarce water.

In addition, Sections 85-2-402 and 85-2-113(3), MCA should be amended to allow temporary emergency exemptions to the requirement for department approval of voluntary water right changes. The amendment should set a maximum period for such emergency changes and broadly define "emergency" to include severe drought, the threat of major environmental damage, or the threat of loss of property or life. Moreover, the emergency-period water user should be required to assume liability for any adverse effects resulting from the emergency change.

A new section of law is also needed to clarify that appropriators may lease water to other individuals, corporations, or public agencies, subject to compliance with Department of Natural Resources and Conservation (DNRC) change approval requirements. Under this amendment, DNRC would receive a copy of all such leases and be notified of any changes in the lease or its termination. Termination of a lease or the reversion of the water back to the right holder would require notification of DNRC but would not be subject to department approval. However, any change in a lessee's use involving a change in purpose, place of use, point of diversion, or place of storage would require department approval. The legislation would also provide that no permanent rights would vest to any users of return flow from the leased water use and that, for purposes of enforcing water rights, the holder of the right is responsible for the operations of the lessee and compliance with the decisions of water commissioners or the district court.

The legislature should also provide a statement of intent indicating that DNRC is to adopt rules governing the processing and review of change applications so that any change in a water right will not result in more water being consumed under the new use than was consumed under the original use. Such a requirement will better assure that the rights of existing water users are protected in any water right change proceeding.

Administrative Action

To improve education and research on irrigation efficiency, DNRC, in cooperation with the U.S. Soil Conservation Service and the Montana Cooperative Extension Service, should evaluate the effectiveness of existing research and public information and training efforts. DNRC should then prepare a report for the State Water Plan Advisory Council (SWPAC) that presents the results of the study and sets forth recommendations for any improvements.

DNRC should also assemble an Irrigation Efficiency Task Force, composed of technical experts from a number of agencies, to identify specific areas of Montana where increasing irrigation efficiency would have the greatest benefits. To help identify those areas where irrigation efficiency is necessary and/or feasible, specific criteria would be applied, including the availability of surface and ground water, reservoir storage, likely water quality benefits, and the relative significance of return flow benefits. On the basis of the task force findings, available technical and financial assistance could then be targeted to these areas.

As a means to further inform and assist water users experiencing supply problems, DNRC should publish brochures or other information regarding the procedures for basin closure, abandonment of water rights, water rights enforcement, and water rights changes and transfers. Such brochures should be available upon request from DNRC, public libraries, and county courthouses across the state.

To assure continued federal government support for improving agricultural water use efficiency, DNRC, through the Governor's Federal-State Coordinator in Washington, D. C., should continue to monitor and support federal funding to programs or projects that improve agricultural water use efficiency in Montana. In addition, because agricultural water use efficiency is an objective of the state water plan, and the Water Development Program is the primary mechaism for implementing the state water plan (Section 85-1-602, MCA), it should give special consideration to project proposals that improve the water use efficiency of existing agricultural projects.

To further clarify the laws governing the change and transfer of water rights, DNRC should

adopt appropriate rules on change application processing, the process governing emergency changes, and enforcement of the waste statute.

DNRC should contact the state's irrigation districts and other organized agricultural water use associations to encourage an examination of the terms and conditions of their incorporation as well as any contracts with state and federal agencies to determine whether they could transfer salvaged waters beyond their boundaries. If some legal restriction exists, these organizations may wish to consider renegotiating or otherwise changing their charter. Water rights leasing and transfers by these organizations may be one way for them to make conservation efforts more profitable.

Finally, DNRC should publicize innovations in the way water rights are changed and transferred, particularly, with the participants approval, case studies which have resulted in profitable transactions and better utilization of the resource.

Financial Requirements and Funding Strategies

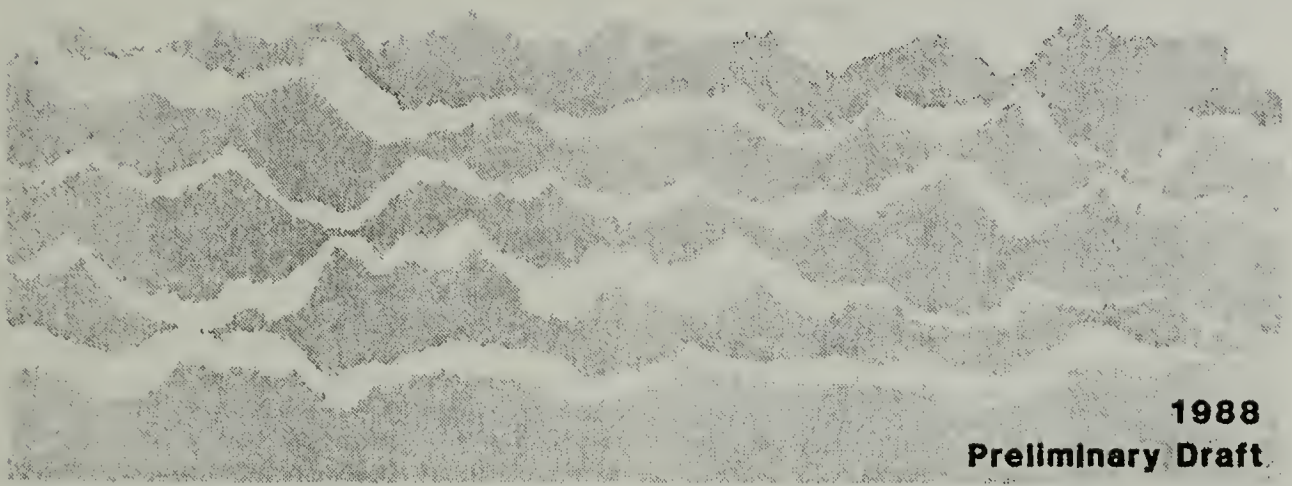
It is anticipated that the administrative actions can be accomplished under current-level funding for the state water planning program.

Time Schedule

	Activity	Responsibility	Deadline
A.	Development and Implementation Tasks		
1.	Draft legislation	DNRC	January 1989
2.	Enact legislation	Legislature	April 1989
3.	Draft rules	DNRC	April 1989
4.	Adopt rules	DNRC	August 1989
5.	Contact irrigation districts and agricultural water users associations	DNRC	May 1989
6.	Publish brochures	DNRC	August 1989
7.	Evaluation report on irrigation efficiency research, information, and training	DNRC	September 1989
8.	Irrigation Efficiency Task Force Report	Irrigation Efficiency Task Force	December 1989
9.	Innovative water transfers case studies report	DNRC	December 1989
B.	Ongoing Tasks		
1.	Rank agricultural water use efficiency project proposals in Water Development Program	DNRC	
2.	Monitor and support federal funding	DNRC/Governor's federal-state coordinator	

MONTANA WATER PLAN

Management Section



1988
Preliminary Draft

Subsection: Federal Hydropower Licensing and State Water Rights

Introduction 2
Background 2
Policy Statement 3
Problems, Options, and Recommendations . . . 3
  Problems 3
  Options 3
  Recommendations 3
Plan Implementation 4
  Legislative Action 4
  Administrative Action 4
  Financial Requirements and Funding Strategies 4
  Time Schedule 4

WATER RESOURCES DIVISION DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

1520 EAST SIXTH AVENUE HELENA, MONTANA 59620-2301 (406) 444-6637

INTRODUCTION

Since 1920, the Federal Power Act (FPA) (16 USC 791(1982)) has required the Federal Energy Regulatory Commission (FERC) to license any hydropower project that: (1) is located on federal land; (2) uses water impounded by a federal dam; (3) is located in, or uses water from, a navigable stream; or (4) produces power which affects interstate commerce. Following the U.S. Supreme Court decision in First Iowa Hydro-Electric Cooperative v. Federal Power Commission, 328 U.S. 152 (1946), FERC is not bound by state laws or policy in determining the number and location of hydropower projects it may license within a state. Not only does FERC's authority to site hydropower dams preempt all state decision-making on the issue, but FERC contends it is not required to consider Montana's water law system of prior appropriation. This relationship between FERC and the state has frustrated the state's attempt to manage its water resources by: (1) not allowing the state to optimize water use when a hydropower project virtually forecloses all future upstream uses; and (2) eroding the state's authority to control the allocation and use of its water.

BACKGROUND

In 1920, when almost one-third of the United States' energy needs were supplied by hydropower, Congress enacted the Federal Water Power Act in response to fears that the hydropower industry could be concentrated in the hands of a few major power companies. The law was amended in 1935 to become the Federal Power Act (FPA) and is administered by the Federal Energy Regulatory Commission. In passing the FPA, Congress seemed to create a balance between state and federal governments in authorizing hydropower projects. The FPA required a license from FERC, but also provided for the application of state water law. However, in its First Iowa decision, the U.S. Supreme Court held that a hydropower project could be federally licensed even though the applicant was in violation of Iowa laws that required a state permit to build a dam and prohibited the dewatering of a stream. The Court's decision was based on grounds that a state license, as a condition precedent to federal action, would: (1) give the states veto power over projects that Congress intended FERC to regulate; (2) allow the states to control the comprehensive planning that congress entrusted to FERC; (3) result in a duplicate system of federal and state licensing that would be unworkable; and (4) make FERC the agent of the states for purposes of enforcing state laws.

Based on First Iowa and subsequent decisions, FERC's position is clear: an applicant for a federal hydropower license does not have to acquire a state water right prior to issuance of the license. In addition, the license may contain a special article allowing additional time to acquire the state water rights necessary to operate the project. If a federal license is issued, the licensee acquires the federal power of eminent domain and may condemn existing rights to acquire water for the project, provided that the right-holder is compensated. Thus, a FERC licensee can be inserted into the water rights system without ever having to comply with state water laws.

The Montana Constitution provides that all waters in the state are the property of the state for the use of its people and are subject to appropriation as provided by law for all beneficial uses, including hydropower. Since passage of the Montana Water Use Act of 1973, an appropriation of water requires a permit from the Department of Natural Resources and Conservation. Disruption of this appropriation system of water rights is only the most obvious and fundamental effect for FERC's disregard of state policies, procedures, and laws. Under the provisions of the Federal Fish and Wildlife Coordination Act and the Electric Consumers Protection Act, FERC must consult with state and federal fish and wildlife agencies when considering the issuance of a federal license (or exemption from licensing) for a proposed hydropower project. In many instances, this consultation leads to the imposition of minimum instream flow requirements on a project's federal license, often in disregard of state water law. Another problem centers on the fact that some hydropower projects may require a large share of the available flow at a certain point on a river. If FERC licenses a project and hasn't fully considered the range of state water management objectives, it may foreclose future agricultural, municipal, and other consumptive water uses upstream from the licensed project.

As demand increases for Montana's limited water supplies, the role of the state in controlling the allocation and management of this resource becomes more critical. Because of its knowledge of existing water use and water availability, the state is in the best position to exercise water management authority, but is frustrated by asserted federal preemption of this authority in regard to FERC hydropower licensing. Therefore, the state wishes to: (1) assure that FERC licensing and relicensing decisions are consistent with state resource management decisions, including the appropriation of water, the siting of hydropower and associated facilities, protection of fish and wildlife, and maintenance of water quality; (2) maximize state

influence on hydropower development in Montana while acknowledging a federal interest in coordinating such development throughout the region; (3) assure that FERC decisions comply with Montana's comprehensive water plans; and (4) guarantee that Montana's water rights system is fully considered in FERC decisions regarding water allocation.

STATE WATER PLAN POLICY STATEMENT

Montana must seek to maximize control over the management of its water resources in matters pertaining to the siting of hydropower generating facilities. Water management agencies as well as hydropower producers in Montana should, to the extent possible, pursue development of common positions when dealing with FERC and matters involving changes to the Federal Power Act.

PROBLEM, OPTIONS, AND RECOMMENDATION

Problem

FERC decisions on the licensing of hydropower projects fail to reflect Montana's statutory prerogatives concerning the allocation and management of the state's water resources.

Options

The first option for dealing with this problem is to work within the federal hydropower licensing system. This option would entail a state consultation process that includes all concerned agencies and groups, and the hydropower developers. Under this process, applicants for a federal hydropower license would be advised of all state requirements regarding fish and wildlife effects, water quality certification, environmental impacts, water use permits, facility siting, and state water management goals. In addition, the consultation process would facilitate the project's review by state agencies and minimize the conflicts when the application is submitted to FERC. Under this process, holders of existing hydropower licenses and other interested agencies and groups could also seek mutually acceptable means of resolving problems surrounding current operating facilities. Key among the issues that might be involved are fishery enhancement or upstream water development.

Through this approach, state agencies and the hydropower producers would work on the issues surrounding a project and the means to resolve any problems. In turn, it is expected that FERC would accept the conculsions of the Montana consultation process and condition the license accordingly. The process would be defined under the state water plan as the comprehensive analysis that will be submitted to FERC for consideration as required under the Electric Consumer's Protection Act. Each analysis could also be used for interventions in federal hydropower licensing proceedings.

The second option for dealing with the FERC decision-making process is to change the federal hydropower licensing system. This would largely focus on amending the Federal Power Act to maximize state control over the allocation and management of its water and related resources. Potential amendments include provisions that would: assure consultation of state agencies charged with energy facility siting; allow states to collect fees from hydropower license applicants in order to study the impacts of proposed projects; require FERC to defer to state water plans, unless there is an overriding national interest; ensure fish and wildlife protections as provided by the Electric Consumer's Protection Act are sustained; make compliance with state water law a condition of a federal hydropower license; and provide that a water right for a hydropower project can be obtained only in accordance with state law. Another proposed amendment would abolish or limit FERC's authority to license hydropower projects and correspondingly increase state-level authority. As a final element of this option, the state would seek to change the federal licensing system by supporting litigation that has the potential to overturn the First Iowa decision of the U.S. Supreme Court.

Recommendation

Both options one and two are recommended, thereby establishing a two-pronged approach for dealing with FERC and the federal process for licensing hydropower projects. In cooperation with Montana hydropower producers, state agencies would: (1) work within the existing federal system of hydropower licensing to influence FERC decisions on the siting and operation of hydropower projects in Montana; and (2) develop and pursue statutory changes to the federal hydropower licensing system as necessary to maximize state-level control over the allocation and management of Montana's waters.

PLAN IMPLEMENTATION

Legislative Action

No specific legislative action is required. However, the recommended approach in dealing with the issue presumes that the state water planning process will continue at appropriate levels of funding by the legislature.

Administrative Action

A hydropower coordinating committee will be established to facilitate the recommended consultation process, and to develop and review proposals to amend the Federal Power Act or overturn the First Iowa decision. The committee will be composed of representatives of water management agencies, hydropower producers, and key public interest groups.

Financial Requirements and Funding Strategies

It is anticipated that the proposed administrative actions can be accommodated under current-level funding for the state water planning program. If new, detailed information is needed to intervene in a federal licensing proceeding, additional costs might be incurred.

Time Schedule

Activity	Responsibility	Deadline
A. Development and Implementation Tasks		
1. Establish coordinating committee (CC)	DNRC	September 1988
2. Develop state consultation process	DNRC and CC	November 1988
3. Define SWP process to analyze proposed hydropower projects	DNRC	November 1988
B. Ongoing Tasks		
1. Monitor FERC licensing activities	DNRC	
2. Intervene in FERC licensing proceedings	DNRC and CC	
3. Promote negotiations with appropriate hydropower licensees	DNRC	
4. Review proposed amendments to FPA for adequacy	DNRC	
5. Monitor congressional actions relating to FERC	DNRC	
6. Monitor all litigation related to FERC and state water management	DNRC	

REVIEW OF PUBLIC COMMENTS ON DRAFT SECTIONS OF THE STATE WATER PLAN

A REPORT TO THE STATE WATER PLAN ADVISORY COUNCIL

Prepared By

Water Resources Division
Montana Department of Natural Resources
and Conservation

September 28, 1988

INTRODUCTION

I. BACKGROUND

A fundamental attribute of the state water planning process is that of consensus building. To this end, the plan formulation effort reflects involvement of various agencies, groups, and individuals with an interest or role in the management of Montana's waters. In devising its draft plan recommendations, the State Water Plan Advisory Council (SWPAC) considered thoughts from a diversity of interests as represented on the Technical Advisory Committees. However, before finalizing the planning recommendations, the SWPAC turned to the public-at-large for its reflections.

II. PUBLIC REVIEW PROCESS

During late-August and early-September, the department conducted a series of public meetings at which the draft plan sections were reviewed and public comment solicited. The location and date of those meetings, and the approximate numbers of people attending are noted below.

Location	Date	Estimated Attendance
Kalispell	August 22, 1988	40
Missoula	August 23, 1988	200
Helena	August 24, 1988	120
Bozeman	August 25, 1988	350
Billings	August 29, 1988	200
Miles City	August 30, 1988	100
Glasgow	August 31, 1988	100
Great Falls	September 1, 1988	250
Butte	September 7, 1988	500

In announcing the meetings, the department provided copies of the four plan sections along with a news release to over 1,200 agencies, interest groups, and individuals. Mailed on August 5, 1988, the information was also submitted to about 85 newspapers, radio stations, and television stations. The week prior to the meetings, the department submitted another news release to media in the specific areas where the meetings were to be held. Finally, on the basis of comment received during the first series of meetings, the department announced the later gatherings in special newspaper advertisements.

During the meetings, the public was advised that comment on the plan could be provided verbally or in written form. Those wishing to forward written statements were asked to submit their comments to the department by September 16, 1988. In response

to a number of requests, this deadline was extended to September 23, 1988. This allowed the department sufficient time to incorporate those comments in this review. It was also noted that comments would be accepted at any time.

III. OVERVIEW OF THE MEETINGS

In conducting the public meetings, the department first provided a brief background on water planning in Montana and summarized the recently adopted planning process. With that introduction, the format of the meeting was then set forth. Comments on any aspect of the plan sections were encouraged as well as those pertaining to the process itself. It was further noted that the draft recommendations are those of the SWPAC and not the DNRC. At this point in the process they are not final recommendations to the legislature or any other decision-making body. They are draft proposals to the public for its consideration. If the SWPAC feels an issue needs additional consideration based on the public review, further action on a plan section can be deferred until the issue is revisited under the process.

Many of the comments at the public meetings were somewhat general and did not focus on the specific recommendations. This is understandable in that this was the first major exposure of the process and the draft plan recommendations. Nonetheless the comments received provided useful insights on the public's perceptions of the planning process and the issues being addressed. Although comment was received on all of the draft plan sections, most of the comment was focused on instream flow protection and, to a somewhat lesser extent, agricultural water use efficiency. Importantly, much of the comment at the meetings was founded on a perception that the planning process and the draft recommendations could result in the taking or diminution in the value of existing water rights.

The written comment was somewhat in contrast to that provided during the public meetings. The majority of the written remarks, although similarly diverse, were more concerned with the need to protect and enhance flows for the protection of instream resources. The comments were also more focused on the specific planning recommendations. This is to be expected since the reviewers had the time to more fully reflect on the substance of the recommendations.

IV. ANALYSIS OF THE PUBLIC COMMENT

The comments provided the department were rather extensive and encompassed a diversity of perspectives. Yet, in analyzing the remarks, it was found that they tended to fall in a much smaller number of groupings. In the following sections of this report, the grouped remarks are presented for each of the plan

sections as well as the planning process itself. Although the following presentations vary in format, they all summarize the public comments and provide background on the issues raised when necessary. Since this document was prepared and mailed while written comments were still coming in, it may not include all the public comments received.

Appendix A lists the organizations that submitted written comments on the draft state water plan. Appendix B provides copies of letters from many of these organizations.

I. COMMENTS

Public comment on the planning process is summarized below. In certain instances, the statements deal with matters for which the Council will likely wish some clarification or background. Thus, the department has provided that information for a number of the following statements.

1. The public meetings on the state water plan were poorly noticed.

   Background: Two weeks prior to the first meeting, the department mailed news releases and copies of the plan sections to over 1,000 agencies, groups, and individuals as well as to the news media. Heeding comment received during the first set of public meetings, the department also announced the later meetings in special newspaper advertisements.

2. The timing of the meetings was unfortunate due to the drought; the time of the year made attendance difficult for those involved in agricultural activities.

   Background: The presence of a severe drought tended to heighten citizen interest in the water resource management issues being addressed by the plan. The time of year selected for the meetings was based on the program goal of testing the planning process using a calendar year planning cycle that culminated with the start of the 1989 legislative session.

3. The planning process does not reflect adequate input from individuals and groups in the agricultural sector.

   Background: Although agriculture did not predominate, all TAC's included representatives from various agricultural groups. Further, half of the individuals on the SWPAC have a direct involvement in agricultural enterprises. The public meetings are yet a further means to involve agricultural interests in the planning process.

4. The process is moving too fast. Major decisions, requiring ultimate legislative action, are being made too close to the legislative session.

   Background: The pace of the process has largely been dictated by the desire to test the new planning process and do so using a one year planning cycle.

5. The water planning process is needed.

6. The specific players in the process are crucial to devising and implementing acceptable planning recommendations.

Background: The water management issues facing Montana are complex and frequently affect a diversity of interests. Thus, the water planning process acknowledges that the groups and individuals representing those interests must be involved in formulating the plan.

7. Cooperation among the various interest groups is needed in the planning process.

8. The DNRC has an excessive control over the planning process.

Background: The planning process acknowledges that the state water plan must be water management plan for Montana and not reflect the interests of any particular agency or group. To that end, all policy decisions regarding the development and implementation of the plan have become prerogatives of the SWPAC and not the DNRC. However, the law clearly places responsibility for formulating and adopting the plan upon the DNRC.

9. As a regulatory agency, DNRC has an inherent conflict of interest that affects its credibility in the planning process.

Background: Over the years, the legislature has assigned a wide range of water management responsibilities to the DNRC. In doing so, the legislature has determined that it is appropriate for the department to be involved in water planning activities as well as those of a regulatory nature.

10. The legislature must play a major oversight role in the water planning process.

Background: The revised water planning process explicitly acknowledges the legislature's important role in the state's water resource management activities. Four legislators are members of the SWPAC and, as required by Montana law, the legislature's Water Policy Committee is regularly consulted about the state water planning activities. Further, adopted sections of the plan are submitted to each general session of the Montana legislature.

11. The bottom line of the planning process must be the clear recognition and protection of existing water rights.

Background: Reflecting a fundamental precept of the Montana Constitution and resultant water law, state water planning efforts begin from a position recognizing the legitimacy of existing water rights.

12. The citizens of the state have a great concern over the management of Montana's water resources.

Background: The revised water planning process acknowledges the keen interest of Montana's citizens in the management of the state's water resources. Thus, the process has sought to provide for citizen involvement throughout the plan formulation process.

13. The process of developing a state water plan should not proceed until the statewide adjudication is complete.

Background: The statewide adjudication proceeding is clearly an activity of major significance to Montana's water management effort. This is not to say, however, that the adjudication is the state's only significant water management activity. The state's water management activities and underlying planning efforts should not be curtailed pending the conclusion of the adjudication. In order to be responsive to the needs of Montana's citizens and protect their interests in its waters, the state's diverse water management activities must necessarily continue.

14. The complex and diverse issues to be addressed through the plan require a balanced look.

Background: A key aspect of the state water planning process is the need to look at the state's water management problems from a number of perspectives. Thus, a variety of interests participate in the plan formulation process and work toward the development of consensus-based recommendations.

15. The state does not need a water plan or, at least, there is some uncertainty over the need.

Background: The development of a state water plan is a long-standing mandate of the Montana legislature and one that was reaffirmed by the 1985 Water Policy Act.

16. The current water planning process is new and the public is not certain as to its operation and ultimate effect.

17. The water courts should be directly involved in the planning process.

Background: The water planning process acknowledges that a wide variety of agencies, groups, and individuals have a role or interest in the management of Montana's waters. Clearly, the water court is one of those interests and there should be no reason for it not to be an active participant in the planning process, if it so desires.

18. The state water plan should not be a vehicle for addressing major controversial issues requiring dramatic changes in Montana water law.

Background: The water management issues facing Montana are complex and, at times, controversial. Resolving those issues may require legislative remedies. The planning process provides an important forum in which these issues may be discussed and the interested parties can work together toward developing consensus-based recommendations to the legislature and decrease the level of divisiveness and emotionalism in the legislature's deliberations..

WATER INFORMATION SYSTEM

I. COMMENTS

Public comment on the Water Information System subsection of the State Water Plan was generally positive. At the nine public meetings, approximately 11 percent (47 responses) of all questions and comments were directly related to the Water Information System and its development. At every meeting, the public expressed support for the establishment of an information system that would make water data more accessible.

In terms of summarizing this public input, the 47 inquiries generally addressed five basic issues: system users, data types, system access, project financing and general.

Public comments at the meetings revealed one misconception about the nature of the Water Information System and the concept of central access to decentralized data. Some people assumed that all data would now have to be accessed via the Water Information System at the State Library in Helena. For those who are presently familiar with how to secure needed information, the System was perceived as another layer of bureaucracy which could be avoided. In other words, if the System meant that traditional ways to access water information, (i.e. "going down to the county courthouse") would be replaced by a centralized system, some people were apprehensive about its development.

By the same token, several people stated that the development of such a System should be a high priority, is a good idea, and will be a valuable service to private citizens, resources managers, researchers and others. These people indicated that it was indeed difficult to obtain needed water data for one reason or another, and the large number of agencies that manage water data would made it time consuming to locate data sources. They considered the development of a System that provides a central access point to decentralized data sources to be a logical step in the right direction.

Other comments dealt with: who the System would serve (particularly in-state vs. out-of-state users), what kinds of data would be available, where the data would come from, and how would the quality of the data be measured or maintained. Another common interest was whether the Water Information System would help identify data gaps and whether it was being designed to fill such gaps.

The questions and comments were well expressed and the input will be extremely valuable in terms of system development. For the most part, however, the majority of the concerns have been addressed in both the Water Information System issue paper and State Water Plan subsection component paper presented to the Council previously.

The need for a Water Information System has long been recognized as a high priority, most recently expressed as a renewed mandate to the Department of Natural Resources and Conservation (DNRC), in House Bill 680 (1985), to establish a Water Information System. This need was further underscored by the results of the Natural Resource Information System (NRIS) user needs assessment which singled out water resource data as being the most difficult to obtain.

As for the perception that a Water Information System would represent another layer of bureaucracy, to the contrary, the fundamental element in the design of the System is to simplify (not complicate) the current process of obtaining and disseminating water resource information. Data will not be removed or "taken" from where they currently reside, nor will the System adversely affect the water rights process. Instead, the System will ensure that people have a single contact point to find out who has what data, and how to obtain required data.

It should also be understood that the System will not be a "one-shot" attempt to manage water resource data. In many cases, information systems are developed with no provisions for maintenance and updating. The Water Information System is being designed for the long-term and will provide all interested persons access to a wide variety of hydrologic data, new and old, from the available sources. The System's top priority is to provide service to in-state data users and will also furnish a means by which data quality can be evaluated, allowing the user to make the decision as to the data's applicability to the need at hand.

A final issue of public interest is how the Water Information System will be financed. Some individuals stated a preference that the System should be funded through user fees, with System costs covered by those who use it. Other potential users, however, expressed their view that government should provide data access as a standard service to taxpayers; these individuals would presumably agree with the strategy that the System should receive general funds. As outlined in the subsection component paper, NRIS is investigating a variety of funding options; the most appropriate option or combination of options will be a function of legislative action and agency decisions. The NRIS commitment is to secure adequate funds to optimize service while keeping program and user costs at a minimum. Once the System is fully developed and on-line (with the support of current grant funds), and a profile of system use can be documented, the appropriate, long-term funding strategy can be developed.

General

1. A Water Information System is a high priority, a good idea and will be a useful research tool.

2. Will the System be operational by the 1989 Legislature?

3. Why do we need a Water Information System, isn't it just another layer of bureaucracy?

4. Is the development of the System a one-shot deal or is it an ongoing program?

5. Will the System take information from the county court houses?

6. Will the System identify what information is needed, identify information gaps?

7. Will the System affect water rights?

Water Information System Users

1. Who are the primary users?

Data/Water Information

1. What types of data will be available and where will the data come from?

2. What about data accuracy?

3. How will the data supplied by the Water Information System be used? Will it be used to sell water to downstream or out-of-state users?

4. Will old data be input or accessible..utilized?

5. What is the time-frame for the collection, of meaningful data to make decisions?

Access to the Water Information System

1. How does someone access the Water Information System?
2. Will remote access via modem be possible?

3. Will the System access out-of-state information sources?

Project Financing

1. How will the System be financed?

2. User fees - Users should pay for the service.

3. User fees - "I thought government was in the business of serving people".

4. "If it's (the Water Information System) so important, why didn't you approach the legislature?

5. Keep the cost (of using the System) reasonable.

6. Will out-of-state users be charged?

FEDERAL HYDROPOWER LICENSING AND STATE WATER RIGHTS

I. COMMENTS

The public meetings elicited few specific comments about federal hydropower licensing and its relationship to state water rights. Instead, response to the draft water plan component came in the form of questions to help better understand the issue. Written comments have been more explicit. Public concerns raised about federal hydropower licensing are summarized below.

1. There is much confusion about the definition of navigability centering on the differences contained in federal statutes, federal courts and state courts. Related to this is the constitutional power that gives rise to the federal authority to license hydropower projects.

2. In western Montana there are particular concerns about hydropower licensing and the role of the Northwest Power Planning council and its concept of "Protected Areas". One comment suggested that a protected areas concept be adopted for the state water plan, while another felt that if Montana attempted to regulate projects as proposed by the NWPPC, control should remain at the federal level under FERC.

3. Several comments recognized the potential for state water plans to influence FERC under the Electric Consumer Protection Act of 1986. Many cautioned nothing be done under the state water plan that might jeopardize the protections afforded fish and wildlife under ECPA and the Fish and Wildlife Coordination Act.

4. There is also confusion about the consultation process as required by FERC and the proposed state process. Although there was one comment that the current system works, others wondered if FERC would cooperate with the state process, if a workable system would influence FERC decisions, if environmental assessments are required, and if there would be public review.

5. It was suggested that the state water plan should recommend to FERC minimum flows on streams and minimum levels on lakes.

6. Interest exists in the number of small hydropower projects that have applied for preliminary permits and licenses, and how existing permits would be handled under the state consultation process.

7. There are some who feel that there are fewer problems in dealing with FERC than with state agencies and that a state process will lead to another layer of licensing with an

attendant increase in bureaucracy and resultant delays in acquiring federal licenses. Others recognized the current duplication at state and federal levels and felt that voluntary participation of hydropower developers could lead to a process that would assist small hydropower producers and avoid duplication.

8. Although no federally licensed hydropower project in Montana has ever used its federal power of condemnation to secure water rights, there was much concern and interest in this aspect of hydropower licensing. Questions were raised about the source of the federal authority, its affect on Indian reservations and its relationship to federal reserved water rights, who establishes the value of condemned water rights, the difference in licensing projects onstream as compared to those that use storage, and if a developer can condemn water rights downstream from a hydropower project.

9. Other concerns were expressed about the federal role in water management within Montana including federal reservoir operations and the possibility of the state water plan to modify those operations; if the federal government has called for an adjudication of interstate water rights; how many federal projects conflict with state water management objectives; if there are any federal proposals for more dams in Montana; and without licensing of hydropower projects, could a federal agency demand water for downstream municipal use in another state?

10. Recognizing that many state agencies are involved in water management, questions were raised about how state policies are established, how interagency conflicts are resolved, who shuts off irrigation when it conflicts with hydropower, and what the role of the Public Service Commission is in setting rates on the sale of power.

11. When the issue of storage came up, there was interest in state proposals for dams, the status of Senator Manning's proposals for offstream storage in the Yellowstone and the proposed Reichle and Pattengale dams. There was a suggestion that the state water plan should identify new small hydropower sites.

12. While there was support expressed for overturning First Iowa to ensure state control of water in hydropower licensing, concerns were raised about who pays for the litigation, and whether Montana was a party to the Rock Creek case pending in the Ninth Circuit Court. One suggestion was made that Montana take on FERC in cooperation with other western states. One written comment cautioned the state to avoid spending lots of money on litigation, feeling it was more prudent to amend the Federal Power Act through Congress.

13. One participant questioned whether or not the state has authority to build offstream storage that might affect downstream hydropower projects in another state.

14. The state was encouraged to educate and inform water users about the licensing issue in order to generate support for the State Water Plan.

15. Although it was suggested the state may be raising a problem that does not exist, another felt that the Montana Power Company objections to the issuance of new water right permits clearly shows that a problem does exist. Questions surfaced about any proposed projects that threaten to foreclose future upstream water development. A written comment pointed out that interest in small hydropower development has slowed, but that the problem may explode if another energy crises develops.

16. Another written comment recommended that special emphasis be placed on option two, noting that the NWPPC is evidence that the mood of Congress has changed from the time of the Federal Power Act. It was felt Congress would frown on FERC's high-handed disregard of state rights, as shown by large sums now being spent to mitigate damages to fish, wildlife, and recreation.

17. One commentor wished more detailed explanation of the issue so a "common" person can understand it and then request legislative action to correct it. There's too much federal government overriding states' rights now. They should be coordinated to work together.

18. Another written comment expressed the opinion that the state does not need any more authority than it now has in licensing hydropower projects. When federal powers granted to FERC by the Public Utility Regulatory Policies Act (PURPA) are added to existing state requirements to build a hydropower project, we have a situation which makes it virtually impossible to build a new hydropower project. The states usually have the most to gain on these projects but don't seem to realize that they won't be built without a little push.

AGRICULTURAL WATER USE EFFICIENCY

I. COMMENTS

General

Several general comments, in addition to comments addressing specific proposals in the plan were made.

1. Increases in irrigation efficiency may have adverse effects on return flows and some local aquifers. What may be an improvement in efficiency for one water user would not be considered an improvement in efficiency to others. Low irrigation efficiencies should not always be considered as a negative.

   Background: The policy statement in the plan component reflects this reality.

2. Storage projects should be developed for the benefit of all water users. This is the best way to increase the efficiency of water use in a basin.

3. Agriculture was under-represented on the Technical Advisory Committee that reviewed this issue. It is not sufficient to have "experts" knowledgeable about irrigation in theory on such committees, people who irrigate for a living must also be represented.

4. The plan should emphasize using more of the water that escapes the state rather than increasing the efficiency of existing uses.

5. Agriculture is very important to the state's economy, bringing in $1.6 billion, much of which is out-of-state money. The strength of this economic sector should not be jeopardized.

6. All uses of water should be examined for efficiency. Agriculture should not be singled out. From an agricultural perspective, municipal uses are wasteful and instream flow is an inefficient use of water.

7. The timing of the public comment and sudden appearance of the plan documents in a drought year caused grave concern among those who rely upon irrigation for their livelihood.

8. Statistics on the consumptive use of water by agriculture were challenged on the basis that the water retained in the bodies of plants and animals ultimately returns to the ground and streams of the state, and water transpired through plants becomes the water supply in some downwind basin.

9. The plan section implies that the use of water by irrigators is detrimental to the larger interests of the state. This is speculative and unsubstantiated by facts.

10. The plan section invites a Public Trust Doctrine lawsuit.

11. Can an irrigator expand his irrigated acreage under an existing water right by improving efficiency?

Background: It is possible, providing that the irrigator applies for and receives DNRC approval of a water right change. That approval would require that no other water user would be adversely affected and that no more water would be consumed under the original water right. In reality, however, it may be rare that these conditions are met.

12. Economics will be the determinant for positive change in irrigation efficiency. Irrigators will improve efficiency when it becomes profitable for them to do so.

13. Efficiency of diversion (ditch lining, replacing headgates) should be increased to make more water available to farmers on the field.

14. Existing water law is fair, is right, and is capable of serving the future equally as well as in the past. If changed, the entire system will be put in chaos and water rights will be jeopardized.

15. Increased efficiency can be very beneficial to agriculture. The experiences with the Greenfields Irrigation District and analysis of the Milk River water shortages were cited as examples.

16. Irrigation water saved is costly and those costs should be reimbursed to the water right holder. Salvaged water should not merely be allocated gratis to instream flow.

17. Montana is far behind other western, semi-arid states in the development of efficient and cost-effective irrigation systems.

18. Construction of flood-proof irrigation structures should be a high priority.

19. DNRC should use the Resource Conservation Act appraisals as base information on irrigation water management.

20. New ideas should be checked out, like making icebergs in the wintertime.

21. The value of economic return per 1000 gallons used is low in irrigation compared to some industries.

22. The plan section on water use efficiency should stress watershed management and soil investigations. Evapotranspiration from well-vegetated watersheds is nature's way of cloud-seeding. Reservoirs capturing runoff from denuded watersheds are not effective forms of conservation. Return flows often carry considerable silt when excessive water is applied to thin, marginal soils.

23. The cheapest way to make water is to conserve it.

24. As a former rancher, I know the use of most irrigation water is very inefficient.

25. The use of water by irrigators should be given the same management consideration as is given to applying seed or deciding when to cut a crop. Instead, and because it is so inexpensive, irrigators are careless with their use of water.

26. Farmers and ranchers should do more watering at night rather than at the hottest times of the day.

27. The plan proposals would provide for a more diverse and stable economy that will maintain itself even in bad years.

28. If agriculture was treated like most forms of business and had to get water quality discharge permits, less sediment, chemical fertilizers, pesticides, and manure would be moving from their fields to our streams.

29. Water rights are an anachronism of the past century. All water should be put to the most beneficial use, regardless of who used it first.

30. Taxing water use -- a large number of commentors were strongly opposed to the consideration of this option. A few commentors felt the idea may have some merit and should be further investigated.

31. Tax credits -- a few commentors supported the idea of providing tax credits to irrigators that improve their water use efficiency.

32. Water bank -- some people commented on the consideration of this option and thought it was an interesting idea, although at least one thought that the government should not be the banker. Others commented that the idea was contrary to the prior appropriation doctrine.

Funding for Irrigation Efficiency Improvements

1. Several commentors simply expressed support for the funding recommendations in the plan section.

2. Some opposition was also expressed to any further subsidization of existing water projects and additional water development.

3. Irrigation is, to a large extent, publicly subsidized, without taking into consideration the costs to the public in terms of adverse effects to fish, wildlife and water quality. Analysis is needed to compare the benefits of irrigation to the state economy with the costs, including costs to taxpayers and the environment.

4. Increasing agricultural water use efficiency will be more expensive than most people realize.

5. Doubt was expressed over the possible success of securing Pick-Sloan funds.

6. Pick-Sloan funds should be used to pay for the installation of water measuring devices. This would improve efficiency.

7. Agriculture doesn't want any more handouts. Subsidies have already given agriculture a black eye.

8. All further government funding to agriculture should be tied to improved efficiency in its use of all natural resources.

9. The pursuit of ways to finance rehabilitation of the many old, inefficient irrigation delivery systems around the state should be regarded as a high priority.

10. The technical guides and best management practices of the Soil Conservation Service, the research-education capabilities of the MSU Extension Service, the ASCS and SCS cost-sharing programs, and FHA financing assistance should be supported by and utilized through the state water plan.

Clarify Laws on Water Transfers

This recommendation is also found in the instream flow plan section, and drew far more comments than any of the other recommendations in the plan. Only those comments most relevant to irrigation efficiency are addressed here. Other comments relevant to this recommendation are included with comments made on the Instream Flow section of the plan.

1. Several commentors expressed support for this recommendation as a way to provide economic incentives for improved irrigation efficiency.

2. Many other commentors (probably the most) opposed any changes to existing water law out of the fear that existing water rights would be jeopardized.

3. Many commentors did not realize that water rights can be severed from the land and sold under the existing water law.

4. Many commentors did not believe water rights should be changed and transferred until the ongoing water rights adjudication was complete.

5. Some commentors did not know that when water rights are changed and transferred, they retain their original priority date.

6. Wouldn't a long term lease of a water right result in the abandonment of the water right?

Background: The issue of abandonment would have to be addressed in any legislation proposing private water leasing.

7. Whatever happened to the concept of "use it or lose it"?

Background: The concept remains relevant and a dominant precept of Montana water law. However, if a water right is changed and transferred to another use, it continues to be "used" unless the new user abandons it.

8. Water right changes and transfers of salvaged water will have adverse effects to other water users.

Background: This is why such water rights changes are not allowed without DNRC approval. The purpose of requiring that approval is to allow those who might be adversely affected to object, and if the DNRC finds that adverse effects are likely, the change in water right would be denied or conditioned.

9. The state economy needs greater diversity. Allowing the transfer of salvaged water to instream flow would accommodate that diversification.

10. Water rights should not be severable from the land and any water salvaged from improved efficiency should go to the water right holder next in priority.

11. The beneficiaries of improved irrigation efficiency should be the ones to pay for it.

Regulation of Waste

1. There was strong opposition to this recommendation from a large number of commentors, particularly given the problems of defining when waste occurs.

2. A few commentors felt that this was a realistic and meaningful approach to improving irrigation efficiency.

3. Who will be responsible for identifying waste?

4. Let water users police each other.

5. Regulation is not needed, let the private enterprise system work. There is already too much interference with private property.

6. There is very little waste. The idea that small savings by agriculture would produce lots of water is a myth.

7. Neighbors should not be pitted against each other in identifying water waste.

8. Improving efficiency will ultimately come down to regulation and the effectiveness of regulation will come down to how well the regulations are enforced.

9. If waste regulations are not or cannot be enforced, they shouldn't be pursued.

INSTREAM FLOW PROTECTION

I. COMMENTS

General

Several general comments were made in addition to comments addressing specific proposals in the plan.

1. The instream flow protection plan section threatens existing water rights and limits opportunities for future offstream water use.

2. The instream flow protection plan is another attempt to use the "public trust doctrine" to take away existing water rights.

3. If water is going to be made available for instream flows, it must come from agriculture or water storage. Since storage is not feasible in most cases, the plan proposes to take away agricultural water rights without compensation to meet instream flow objectives.

4. Agriculture is the number one industry in the state and should not be adversely affected by any attempt to better manage instream resources.

5. The revenue generated via agriculture's beneficial use of Montana's water far exceeds all the revenues generated from instream flow uses of water.

6. The state owns the water. It is not right that state agencies should have to buy back what the state already owns.

7. Instream flows are a consumptive use of water since water allocated to these purposes is unavailable to other water users.

8. Instream flows are a waste of water since water that could be used for economically beneficial offstream purposes leaves the state.

9. Irrigation contributes to instream flow protection through return flows.

10. Federal and Indian reserved water rights will have a significant impact on both instream and offstream uses of water.

11. Energy costs will increase if instream flow protection is increased.

12. There is a lack of evidence supporting many of the assumptions and problem statements in the plan.

13. The state water plan should be limited to documenting existing strategies for instream flow protection and commenting on their adequacy.

14. There should be a limit on the amount of water allocated to instream flows.

15. Instream flow protection has been historically considered a second class use of water. This discriminatory treatment remains today in many of the state's laws and programs.

16. The state has a "public trust" responsibility to protect and manage instream resources.

17. The definition of "Appropriation" in Section 85-2-102, MCA should be revised by specifying that a certain level of flow be left in the stream for the purpose of maintaining instream resource benefits.

18. The protection and management of instream resources needs to be more adequately considered in the water allocation process. It should be treated on an equal basis with offstream water uses.

19. Instream flows are crucial to the continued existence of Montana's most unique and treasured resource: wild trout and wildlife. Instream flows support a nationally renowned sport fishery and "quality of life."

20. Instream flows support the tourism and recreation industry which is vital to the economic future of the state. The annual net economic value of Montana's fishery is estimated to be $122 million. This does not include the economic benefits of hunting and other water-based recreational activities.

21. The water use permitting process should be temporarily halted, and basins closed to further appropriation, while a minimum instream flow is established on every stream in the state.

22. The primary problem is not maintaining instream flows per se, but increasing flows in dewatered basins.

23. Discussions of instream flow protection should be expanded to include <u>minimum lake levels</u>.

24. The policy statement presented in the plan contains conflicting propositions. Instream flows cannot be adequately maintained and enhanced without transferring existing offstream water rights to instream uses. It also runs counter

to the statutory mandate to protect instream flows. The policy statement should be to maintain and enhance instream flows, with other concerns being secondary.

25. A constitutional amendment should be adopted prohibiting the dewatering of streams.

26. Develop a computer program to model instream flows, changes in those flows, and the effects of offstream diversions on instream resources. The program could be used to determine water availability and prevent the overappropriation of streams and rivers.

27. Once instream flow rights are established, they need to be adequately monitored and enforced.

28. The best way to resolve this issue is through cooperation among instream and offstream water users.

29. The state water plan is a good process for resolving this issue.

Permitting Process

The following comments were received on the water use permitting process and its affect on efforts to maintain instream flows:

1. Since there is no convincing need shown as to why public entities should be allowed to object to new water use permits and changes in use, they should not be allowed to have this opportunity.

2. Allowing public entities to object would delay the permitting process and be a non-incentive to economic growth and development.

3. Allowing public entities to object would duplicate the reservation process as a means to protect instream resources. Let the reservation system take care of instream flow needs.

4. Allowing public entities to object would allow the Department of Fish, Wildlife, and Parks to take water right away.

5. If public entities are allowed to object, they should be able to do so on the basis of adverse affects to any water use, not just instream flow benefits.

6. This would be a very important modernization of water law.

7. Applying the historical use argument to its logical conclusion implies that instream uses have precedence and priority over all other uses.

8. Water use permits should not be granted where they will adversely affect instream resources.

9. Both options 1 and 3 should be adopted. However, the subordination in Option 3 defeats the purpose of water reservations for instream flows.

Security of Instream Reservations

The following comments were received on the perceived insecurity of instream flow reservations:

1. Since there is no evidence suggesting that instream flow reservations are insecure, no action should be taken on this perceived problem.

2. Both instream and offstream water reservations should be treated equally. Therefore, the optional five-year reallocation of instream reservations should be deleted.

3. Instream flow reservations should have absolute security.

4. Instream flow reservations should not be subordinated to either offstream water reservations or subsequent water use permits.

5. Option 2 should be adopted.

6. Option 3 should be adopted.

Quantity of Water

The following comments were received on the quantity of water allowed for instream flow reservations:

1. More evidence should be provided showing why the 50 percent cap is inadequate.

2. Eliminating the 50 percent cap would result in arbitrary and subjective decision making.

3. All reservations should be treated equally and the BNRC should be allowed to make decisions on the quantity of water required for specific reservations on the basis of need and the relative value of competing uses.

4. The 50 percent cap is arbitrary and should be deleted. Instream flow reservations should be based on need (i.e., biological criteria).

5. Option 3 should be adopted.

Enhancing Instream Flows

The following comments were received on alternative approaches to increasing or enhancing instream flows in dewatered basins:

1. This set of proposals threaten to confiscate existing offstream water rights, without compensation, for instream flow purposes. Therefore, they should not be recommended.

2. Allowing transfers and leases from offstream to instream uses would adversely affect other offstream water users.

3. Transfers and leases of water from offstream to instream uses should not be allowed because it will lower the local tax base; reduce food and fiber production; and lower the local economic base.

4. If public entities are allowed to purchase or lease water rights for instream uses, the price of water will become so high that offstream water users won't be able to compete; public interest groups would contribute to public entities to buy even more water rights; and ultimately all the water rights within aquifer basins would be purchased by instream flow advocates.

5. There should be an upper limit on the price that could be paid for water rights and the number of rights that could be purchased or leased for instream flow purposes.

6. Allowing such transfers and leases would be very costly to offstream water users since they would have to object each time a transfer or lease threatened to adversely affect their right.

7. Leasing offstream water for instream use is not feasible since the next junior user would use the water flowing in the stream.

8. To the extent that anyone should be allowed to purchase or lease water rights for instream flow purposes, only public entities should be allowed. Private individuals and groups would be inclined to speculate and sell rights to farmers in dry years.

9. Transfers should be made at a fair market value, if at all.

10. Out-of-basin transfers should not be encouraged as a way to increase flows in dewatered basins.

11. The recommendation allowing public entities to purchase, lease, or voluntary transfer consumptive water rights to instream uses is essential for increasing flows in dewatered basins. They are the most important recommendations in the plan.

12. Funding should be provided (i.e., general tax dollars), or a trust fund established, to allow entities to acquire water rights for instream flow purposes.

13. When offstream water rights are transferred or leased for instream uses, they should maintain the priority date of the offstream right.

14. Private individuals and groups, in addition to public entities should be allowed to purchase and lease offstream water rights for instream uses. Allowing the "market" to work in this way would illustrate the true value of instream resources.

15. Water commissioners should be appointed in both adjudicated and non-adjudicated river basins during times of drought to ensure the protection of water rights transferred to instream flow uses, particularly on streams with significant fishery and recreation values.

16. If a water right is transferred or leased from an offstream to an instream use, what is the extent or reach of that right; how is that right quantified; where is the right measured; and how is delivery ensured?

17. Instream flows should be enhanced by the construction the new water storage facilities particularly on high priority streams. This is the only reasonable solution to this issue. Sportsmen and others benefiting from the storage facilities (e.g., the Department of Fish, Wildlife and Parks) and instream flows should be required to pay for them.

18. Another strategy to protect and enhance instream flows is to improve the management of watersheds, including land use activities, forest practices, and so on.

Information and Research

The following comments were received on the proposals for information and research:

1. Information and research on all five topics will provide a sound basis for making policy and management decisions.

2. More research needs to be conducted on the contribution of return flows to instream flow maintenance.

3. Methods exist to quantify flows necessary to maintain instream resources. There is no need to do additional research on these methods.

APPENDIX A

LIST OF ORGANIZATIONS COMMENTING ON THE PLAN

Several individuals, including ranchers, farmers, landowners, outfitters, sportsmen, conservationists, and tourists provided written comments on the state water plan. In addition, several organizations also provided written comments on this plan section, including (in alphabetical order):

- American Fisheries Society
- Anglers Afloat, Inc.
- Avon Outfitters
- Billings Bench Water Association
- Billings Rod and Gun Club
- City and County Planning Board of Lewistown and Fergus County
- Clarks Fork Water User Association
- Curlew Consulting
- Dan Bailey's Fly Shop
- Doug Swisher Fly Fishing School
- Drake and Associates: Aquatic Habitat Consultants
- Carbon Conservation District
- Champion International Corporation
- Fisher and Associates
- Flathead Basin Commission
- Flathead Conservation District
- Gallatin County Agricultural Preservation Association
- Glasgow Irrigation District
- Greater Yellowstone Coalition
- Headwaters Paddline Association
- Highline Sportsmen Club
- Huntley Project Irrigation District
- Inter-Fluve, Inc.
- Magic City Flyfishers
- Malta Irrigation District
- Montana Association of Conservation Districts
- Montana Association of Fish & Wildlife Biologists
- Montana Department of Fish, Wildlife, and Parks
- Montana Farm Bureau Federation
- Montana Stockgrowers Association
- Montana Trout Foundation
- Montana Water Development Association
- Montana Wildlife Federation
- Outdoor Writers Association of America
- Parks Fly Shop
- Resource Conservation Advisory Council
- Southwestern Sportsman Association
- Sun River Electric Cooperative
- Sweetgrass County Preservation Association
- Teton Co-Operative Reservoir Company
- Trout Unlimited

- U. S. Fish and Wildlife Service
- U. S. Geological Survey
- Vigilante Electric Cooperative

UPDATE OF WRITTEN COMMENTS RECEIVED
ON THE
MONTANA WATER PLANNING PROCESS

October 3, 1988

1. Keep the TAC's to a number of less than 30; preferably 12 to 20.

2. Must have adequate representation by agriculture.

3. Must have a more realistic time schedule if the TAC's are to be effective. Promote the seeking of consensus on the issues to the extent possible.

4. WHERE CONSENSUS IS NOT REACHED, THE PLAN SECTION SHOULD NOTE THAT FACT.

5. The time frame for addressing more controversial plan sections must be longer than that used for non-controversial plan sections.

6. Should have two to three TAC meetings before going to the SWPAC and the public.

7. PLANNING PROPOSALS REJECTED BY THE SWPAC SHOULD NOT BE INCLUDED IN THE PLAN SECTIONS (E,G; TAXING OF WATER).

8. IN ADDITION TO THE BOARD OF NATURAL RESOURCES, THE DNRC SHOULD SEEK APPROVAL OF THE WATER POLICY COMMITTEE BEFORE ADOPTING SECTIONS OF THE PLAN.

9. THE PLAN SHOULD NOT ADDRESS CONTROVERSIAL ISSUES REQUIRING CHANGES TO OUR WATER LAW. THE PLAN SHOULD ONLY DEAL WITH ORGANIZING OUR CURRENT POLICIES. ONLY THE LEGISLATURE SHOULD DEAL WITH POLICY-MAKING.

10. THE PLAN SHOULD NOT BE THE VEHICLE TO PROMOTE "...SPECIFIC, MAJOR, CONTROVERSIAL POLICY CHANGES..."

11. Individuals involved in the TAC's should not have to bear the expense of participating.

12. The public needs more time to review the plan sections before conducting the meetings.

13. CONTROVERSIAL PLAN SECTIONS SHOULD BE RE-ROUTED THROUGH THE PLANNING PROCESS (E.G.; TAC'S AND THE SWPAC) BEFORE GOING ON TO THE PUBLIC HEARING.

14. IN RESPONSE TO THE ISSUE RAISED IN POINT 13, THE SWPAC SHOULD DEFER ACTION ON THE INSTREAM FLOW AND AGRICULTURAL WATER USE EFFICIENCY SECTIONS OF THE PLAN.

15. THE WATER PLAN FOR MONTANA SHOULD NOT BE SO FOCUSED ON INSTREAM FLOW PROTECTION.

16. THE SWPAC SHOULD HAVE MORE REPRESENTATION BY AGRICULTURAL INTERESTS.

17. THE PRIORITY OF THE PLAN SHOULD BE TO PROTECT WATER FOR THE CITIZENS OF THE STATE OF MONTANA AND NOT DOWNSTREAM STATES.

18. THE FUNDING NECESSARY TO FINANCE THE PLAN SHOULD BE DERIVED THROUGH HUNTING AND FISHING LICENSE FEES SINCE THE PLAN HAS SUCH A STRONG EMPHASIS ON FISH, RECREATION, AND WILDLIFE.

AN UPDATE ON THE STATE WATER PLAN

WATER RESOURCES DIVISION • MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

Many of you are now aware that a state water plan is being developed for Montana. During late summer of this year, the Department of Natural Resources and Conservation (DNRC) held a series of public meetings across the state to discuss the preliminary recommendations for the plan. More than 2,000 persons attended the 9 public meetings, and many offered comments. Nearly 160 letters on the plan were also submitted to DNRC.

The public meetings were held to obtain comments on the issues covered in the draft plan sections and the recommendations involved. These preliminary drafts did not represent "final" recommendations to the legislature or to any other decision-making body. They were simply proposals, accessible to the public and other interested parties, and open to revision and change. In fact, many of the preliminary recommendations have been changed, based in large part on your comments made at the public meetings and in your letters.

First Steps in the Process

In recent years, the Montana Legislature has shown considerable interest in developing "a progressive program for the conservation, development, and utilization of the state's water resources." According to the legislature, this program, or plan, should "propose the most effective means by which these water resources may be applied for the benefit of the people, with due consideration of alternative uses and combination of uses." In 1987, DNRC, the agency responsible for coordinating the plan, responded with a report to the legislature that outlined a process for developing the plan.

Policy guidance on the plan comes from the State Water Plan Advisory Council, which was appointed by the Governor. The Council consists of ten members, including: two state senators and two state representatives; the directors of three state departments; a representative of the Governor's Office; and two private citizens—a water law expert and an irrigation project manager. Two of the legislators on the Council are also members of the legislature's Water Policy Committee.

In the early stages of plan development, issues are identified and analyzed. Ways to address the issues are developed with input from the public, state and federal agencies, and interest groups. These issues and recommendations are then written into preliminary drafts of the state water plan. Four sections of the plan were at this stage of development when they were presented at this summer's public meetings. Each section addressed a different issue: water information; federal hydropower licensing and state water rights; instream flow protection; and agricultural water use efficiency. In time, the plan will encompass many more issues—some of statewide significance and others that are specific to an individual river basin. The issues are likely to be as diverse and wide-ranging as drought management, water storage, interstate water allocation, and ground water management.

The Public Enters the Process

The preliminary recommendations presented at the public meetings had been drafted by the State Water Plan Advisory Council and by several Technical Advisory Committees composed of people from agencies and interest groups affected by the issues at hand. The meetings gave the public an opportunity to suggest changes, recommend other approaches to the issues, and voice concerns that may have been overlooked. From the outset, the State Water Plan Advisory Council hoped that the public would help shape and improve the state water plan. As it turned out, those of you who attended the meetings and wrote letters showed a strong consensus of opinion on a number of concerns.

Many people felt that their existing water rights would be threatened by the recommended actions, particularly regarding instream flow protection and agricultural water use efficiency. However, none of the plan recommendations are designed to take away existing water rights, and the State Water Plan Advisory Council strongly supports the protection of existing water rights.

The most frequent comment at the meetings addressed the need to develop new water storage facilities to resolve our water supply problems. In response, a future plan section will be solely devoted to this issue. More than half of the letters received expressed support for protecting instream flow resources. Changes were made in the instream flow section to incorporate suggestions from a cross-section of interests.

The Revised Recommendations

A number of persons commenting on the plan were concerned that the planning process and the preliminary recommendations were cast in stone and not subject to change. However, as promised at the public meetings, the State Water Plan Advisory Council carefully considered the public comments and made several important changes.

A number of individuals suggested that the process was moving too quickly and there should be more time for public involvement. The Council therefore recommended that the planning cycle for complex issues be extended from one year to two. Further, it was decided that there be more public involvement throughout the planning process. Finally, the Council recommended that there be an effort to provide water users with more information on Montana water law and its administration.

The Council did not modify either of the recommendations to continue developing a water information system or to change the way of dealing with the federal hydropower relicensing process. However, these are still just preliminary drafts and may be changed after further public discussion. Many of the recommendations in the plan sections on instream flow and agricultural water use efficiency were modified or deleted. Several new recommendations have been added. These changes are shown below. Further changes may be made to incorporate comments from three upcoming public hearings scheduled for early December.

Instream Flow Protection

Deleted recommendations

1. To allow public entities to object to new water use permits and changes in water use on the basis of potential adverse impacts on

fish and wildlife resources, public recreational opportunities, and public health.

2. To remove the 50 percent cap on the amount of water that can be reserved for instream uses.
3. To allow the purchase and emergency transfer of offstream water rights for instream uses.
4. To conduct research on (a) new methods to quantify the instream flows needed to maintain recreation, scenic, and aesthetic values; and (b) the feasibility of inter-basin transfers and ground water sources as alternative ways to enhance instream resources.

Adopted recommendations (open to comment and change)

1. To promote more timely acquisition of instream flow reservations by assigning a priority date at the time any reservation application is received. At the same time, the Board of Natural Resources and Conservation would be allowed to subordinate reservations to intervening water use permits.
2. To evaluate the relative security of instream flow reservations after the ten-year review of the Yellowstone River reservations in 1988.
3. To allow public entities to lease water rights from offstream uses for purposes of instream flows in important stream reaches. The Council emphasized that this opportunity is to be entirely voluntary and would not jeopardize existing offstream water rights. It would result in the temporary transfer of an offstream water right to enhance flows during critical, low flow periods. Under a lease agreement, the offstream water user would still hold the water right and be compensated for not using water during low flow periods.
4. To support public entities in purchasing or leasing water stored in reservoirs above dewatered streams, and to support them in revising the operating procedures on such reservoirs. The Council also recommended assessing the feasibility of new storage projects to enhance instream resources, and supporting cooperative solutions to instream flow problems at the local level, such as irrigation scheduling.
5. To evaluate (a) the effect of return flows on the maintenance and enhancement of instream resources, (b) instream flow quantification methods to determine if existing methods result in an inappropriate amount of water for instream resources, and (c) the physical availability of water to meet the demands for instream resource protection.

The public is also encouraged to comment on the option of allowing water users to object to new water use permits and changes of water rights solely on the basis of potential adverse effects on public health. The Council is currently weighing two possible approaches: that the opportunity to object could include anyone who depends on a minimum streamflow to maintain water quality for domestic uses; or that objections may be limited to those with a water quality discharge permit. Any group or individual objecting would assume the burden of showing how and why the new permit would adversely affect any public health values.

Agricultural Water Use Efficiency

Deleted recommendations

1. To publicize innovations in the way water rights are changed and transferred.
2. To allow the change and transfer of a private consumptive water right to a non-consumptive, instream flow right (considered in the instream flow section).
3. To allow temporary, emergency exemptions to the requirement for department approval of voluntary water right changes (considered in the instream flow section).
4. To clarify that appropriators may lease water to other individuals, corporations, or public agencies subject to compliance with the change approval requirements of law (considered in the instream flow section).
5. To adopt appropriate rules on the enforcement of the waste statute.

Finally, the entire agricultural water use efficiency plan section has been rewritten to more closely focus on the potential agricultural benefits of increasing water use efficiency. As with all revised plan sections, the subsection on options has been deleted. Thus, the "tax" and "water bank" options in the water use efficiency plan section have been deleted.

Adopted recommendations (open to comment and change)

1. To evaluate the effectiveness of existing research, public information, and training efforts to improve agricultural water use efficiency.
2. To provide the state's irrigation districts and other organized agricultural water use associations with information on available technical and financial assistance for improving irrigation efficiency.
3. To continue to monitor and support federal funding of programs and projects that improve agricultural water use efficiency.
4. To give special consideration to project proposals under the state's Water Development Program that improve the water use efficiency of existing agricultural projects.
5. That the legislature should adopt a resolution urging Congress to appropriate funds from the Pick-Sloan Missouri Basin Program to help rehabilitate existing irrigation projects.
6. To draft legislation clarifying who has the right to salvaged (conserved) water. Such legislation should include a statement of intent requiring the adoption of rules governing the processing and review of change applications so that any change in a water right will not result in more water being consumed. Such legislation should also better assure that the rights of existing water users are protected.

The Next Steps

Three public hearings will be held in Missoula, Helena, and Billings in early December to take public comments on the revised recommendations. A notice of the public hearings will be published in local newspapers several weeks before the hearings. Individuals attending the first series of public meetings will be mailed a copy of the revised plan sections along with times and locations of the hearings. Copies of the revised plan sections will be available from local water rights field offices and libraries. Members of the State Water Plan Advisory Council will be on hand to hear the public comments.

After the public hearings, the State Water Plan Advisory Council will meet to make final recommendations on the four issues being addressed this year. The Board of Natural Resources and Conservation will then receive the final recommendations in early January, and copies of the plan recommendations will also be given to the legislature as required by law.

A RESPONSE TO PUBLIC COMMENTS ON THE STATE WATER PLAN

RECOMMENDATIONS OF THE STATE WATER PLAN ADVISORY COUNCIL

October 7, 1988

INTRODUCTION

Based on the public comments, this document presents options for responding to the draft recommendations in the state water plan. The draft recommendations are recited for each issue, options are outlined, and recommendations are presented. The document also presents recommendations for revising the planning process.

PLANNING PROCESS

Based on public comments, the following recommendations are made to revise the planning process.

SWPAC Recommendation: *Extend the planning cycle for complex issues from one year to two years and revise the planning process accordingly. Many have observed that the process is moving too fast and that there is not enough time for sufficient input and discussion of the issues.*

SWPAC Recommendation: *Provide for more public involvement prior to both the selection of issues to be addressed and SWPAC adoption of preliminary plan recommendations.*

WATER INFORMATION SYSTEM

A. "A decentralized information system. . . .is the most appropriate approach for managing Montana's water resource data. This option. . . .is embodied in the on-going MWIS program."

Option 1: Retain the recommendation. MWIS coordinates data management activities and reduces the duplication of effort. Many believe it increases data sharing and accessibility. Public comment was generally in support of the developing MWIS program.

Option 2: Delete the recommendation. Some argue that the existing channels for obtaining information are adequate and MWIS would complicate the process.

SWPAC Recommendation: *Retain the recommendation (Option 1) for the reasons cited, and ensure that existing channels for accessing information are not disrupted.*

INSTREAM FLOW PROTECTION

Permitting Process

A. "Allow objections to new permits and changes in water rights based on potential adverse affects to fish and wildlife resources, recreational opportunities, and public health if no instream flow right exists, and the objector accepts the burden of proving the adverse effects."

Option 1: Retain the recommendation. Although some argue that it will delay the permitting process and may establish de facto water rights for instream purposes, others believe that it will ensure the protection of public values in water.

Option 2: Delete the recommendation. Many believe that allowing public entities to object will delay the permitting process and may establish de facto water rights for instream purposes. They also argue that instream flows can be protected through the reservation process. However, others believe that instream flow values should be considered during the permitting process.

Option 3: Revise the recommendation to allow objections only on the basis of potential adverse affects to public health. Maintaining adequate stream flows for public health reasons is clearly in the best interest of all affected parties. Although no public comment addressed this issue, there is currently no mechanism to ensure the consideration of public health in the permitting process.

No SWPAC Recommendation: *Present option three to the public during the public hearings on the draft final plan sections.*

B. "Assign a base priority date for all reservants. . .and allow the BNRC to subordinate reservations for intervening permits."

Option 1: Retain the recommendation. It establishes an earlier priority date for both offstream and instream reservations. Although reservations may be subordinated to intervening permits, it allows the BNRC to optimize water use within the basin. However, some argue that subordination defeats the purpose of instream flow reservations.

Option 2: Delete the recommendation. Although there may be individual streams that have not been considered, reservations have been initiated for nearly all the major river basins in the state. Consequently, the recommended action may have little impact.

SWPAC Recommendation: *Retain the recommendation (Option 1) for the reasons cited.*

Security of Instream Reservations

A. "Evaluate the relative security of instream flow reservations after the ten-year review of the Yellowstone River reservations in 1988."

Option 1: Retain the recommendation. It is difficult to evaluate the security of instream reservations, and thus determine what action is needed, without first going through the process of making a ten-year review. There was little public comment on the recommendation.

Option 2: Delete the recommendation. Some argue that there is no evidence suggesting that instream reservations are insecure. However, others argue that instream flow reservations are threatened (and treated differently than offstream reservations) by the optional five-year reallocation.

Option 3: Revise the recommendation. Although some argue that there is no evidence suggesting that instream flow reservations are being threatened, others suggest that they are threatened by the optional five-year reallocation. Therefore, they later argue that the optional five-year reallocation of instream reservations should be deleted.

SWPAC Recommendation: *Retain the recommendation (Option 1) for the reasons cited above.*

Quantity of Water

A. "Delete all references to a cap on the amount of water that can be reserved for instream uses and base all reservations on need and the relative value of competing water uses."

Option 1: Retain the recommendation. Many argue that it not only increases the ability to manage instream

resources, but also treats all reservations equally by allowing the BNRC to make decisions on the basis of need and the relative value of competing uses of water. However, others believe that it may result in arbitrary and subjective decision-making.

Option 2: Delete the recommendation. Although it may increase the ability to adequately protect instream resources, some believe that it may also result in arbitrary and subjective decisionmaking. They also believe that it may result in reserving more than 50 percent of the average annual flow in a given basin, which may be unacceptable in certain cases.

SWPAC Recommendation: *Delete the recommendation (Option 2), and continue to evaluate the practical implications of the 50 percent cap.*

Enhancing Instream Flows

A. "Develop legal and institutional mechanisms to allow voluntary transfers, leases, and emergency transfers from offstream uses to instream uses."

Option 1: Retain the recommendation. Many believe that it is the only way to effectively enhance instream flows in dewatered basins. It does not threaten existing or future offstream water rights. However, it may adversely affect local communities if public entities purchase a significant portion of the water rights within a given basin for instream uses. Very few public comments distinguished between purchases, leases, and emergency transfers.

Option 2: Delete the recommendation. Some argue that it threatens existing water rights and limits future offstream water uses. It may also increase the cost to offstream users of defending their water rights. The recommendation, however, is not designed to take away existing rights without compensation, since it is based on a "willing seller-willing buyer" arrangement. It also seeks a balance of instream and offstream uses of water in the future.

Option 3: Delete the permanent transfer option but retain the lease and emergency transfer options. Because of the considerable opposition to the concept of transfers for instream uses, the lease and emergency transfer options appear to be more acceptable options

since they may be perceived as having less adverse impact on the local community. They may also achieve the same purpose as permanent transfers. However, similar education and legislation would be required as with permanent transfers. In addition, few public comments distinguished between purchases, leases, and emergency transfers.

Option 4: Delete the permanent and emergency transfer options, but retain the lease option. The lease option is more acceptable and accomplishes the objectives of both permanent and emergency transfers.

Option 5: Allow public interest groups and private individuals and groups to purchase and lease offstream water rights for instream uses. While this may increase the number of actors involved in enhancing instream flows through transfers, some argue that it would lead to speculation and a monopoly on water rights in some basins. Those commenting on this idea were largely in support of it.

SWPAC Recommendation: *Delete the permanent and emergency transfer options, but retain the lease option (Option 4). If the lease option is not adopted, some type of emergency transfer option should be considered. Private individuals and groups should be allowed to contribute resources to public entities to lease water rights. Before the public hearings, identify the questions and issues surrounding the leasing of water rights for instream purposes.*

B. "Encourage public entities to purchase or lease water stored in reservoirs above dewatered streams and to revise the operating procedures on such reservoirs."

Option 1: Retain the recommendation. Although it is not applicable in all cases, it has proved effective in many situations. Public comment largely supported this recommendation.

Option 2: Delete the recommendation. However, there was little public opposition to the recommendation.

Option 3: Construct new storage facilities to enhance instream resources in dewatered basins. Many argue that this is the only way to increase flows in dewatered streams. Others point out that it is costly and may have adverse environmental consequences.

Option 4: Encourage cooperative solutions to instream resource problems at the local level. This approach has proved effective in several cases. Public comment largely supported this idea.

SWPAC Recommendation: *Retain the recommendation (Option 1); assess the feasibility of new storage projects to enhance instream resources (Option 3); and encourage cooperative solutions (Option 4). These are all viable options and have public support.*

Information and Research

A. "Conduct research on instream flow quantification methods; the contribution of return flows to instream flows protection; the physical availability of water to enhance instream resources; and the feasibility of interbasin transfers and groundwater sources to enhance instream flows."

Option 1: Retain the recommendation. While some argue that research is being conducted in several of these areas, others suggest that research on all five topics would greatly increase the ability to manage instream resources.

Option 2: Delete the recommendation. Although research and information are critical, they are not a priority given limited financial resources.

Option 3: Prioritize the topics by retaining the recommendations to (1) conduct research on the validation of instream flow quantification methods; (2) the contribution of late season return flows to the maintenance and enhancement of instream resources; and (3) the physical availability of water to meet instream flow demands and deleting the recommendations to conduct research on the development of methods to quantify instream flows for recreation and scenic and aesthetic values; and the feasibility of inter-basin transfers and groundwater sources as alternative ways to enhance instream resources in dewatered basins.

SWPAC Recommendation: *Prioritize the topics (Option 3) due to funding constraints.*

FEDERAL HYDROPOWER LICENSING AND STATE WATER RIGHTS

A. "Work within the existing federal system of hydropower licensing to influence FERC decisions on the siting and generation of hydropower projects in Montana; and develop and pursue statutory changes to the federal hydropower licensing system as necessary to maximize state-level control over the allocation and management of Montana's waters."

Option 1: Retain the recommendation. It provides for cooperation and coordination of affected agencies and hydropower developers, while putting state water rights on par with fishery and water quality concerns. It will reduce duplication for hydropower developers faced with satisfying state and federal requirements, thus reducing costs.

Option 2: Delete the recommendation. Some fear that the recommended course of action will lead to another layer of licensing, increased state bureaucracy and costs, and delays in licensing. Another believes that the state has enough authority now and "if it ain't broke, don't fix it."

Option 3: Revise the recommendation to concentrate on amending the Federal Power Act. At least one commentor believes that Congress would be receptive to making changes that would restore state authority in water rights.

SWPAC Recommendation: *Retain the recommendation (Option 1) for the reasons cited above. The recommended action will establish the cooperative state consultation process and provide for interstate cooperation in pursuing legislative and judicial remedies.*

AGRICULTURAL WATER USE EFFICIENCY

Improving Education and Research

A. "...evaluate the effectiveness of existing research and public information and training efforts in improving agricultural water use efficiency."

Option 1: Retain the recommendation. The information produced will be useful in publicizing ongoing information and research programs, and in identifying potential improvements in those programs.

Option 2: Delete the recommendation. Information on how to improve efficiency is available to those who want it and the SWPAC should not be second-guessing the research priorities of the university system. This effort may not be cost-effective.

SWPAC Recommendation: *Retain the recommendation (Option 1) for the reasons cited.*

B. "...assemble an Irrigation Efficiency Task Force...to identify specific areas of Montana where increasing irrigation efficiency would have the greatest benefits."

Option 1: Retain the recommendation. Technical information is needed to identify regional priorities for allocating scarce educational and financial assistance.

Option 2: Delete the recommendation. The goal is unrealistic because the factors involved are too numerous and vary significantly within regions.

Option 3: Revise the recommendation such that the Task Force would develop criteria, (rather than identifying regions) to determine whether a proposal to increase irrigation efficiency should be assisted by the state or if such a project would adversely affect the resource and other water users.

SWPAC Recommendation: *Delete the recommendation (Option 2). While the information generated may be useful, the near-term benefits are unclear.*

C. "...publish brochures or other information regarding the procedures for basin closure, abandonment of water rights, water right enforcement, and water rights changes and transfers."

Option 1: Retain the recommendation. Experience in conducting the public meetings on the state water plan indicated a great need to inform the public on these aspects of current Montana water law. Without sound information, water users cannot make educated decisions for the optimal utilization and protection of their water rights.

Option 2: Delete the recommendation. While the need for this kind of information may exist, this may not be the best way to provide it. Those that want this

information can get it now. A question also arises about the relevancy of this recommendation to agricultural water use efficiency.

SWPAC Recommendation: *Adopt the recommendation (Option 1) for the reasons cited, but do not include it in this plan section. The recommended action should be undertaken as part of the DNRC's ongoing activities and the information can be distributed as part of the ongoing planning process.*

D. "...contact the state's irrigation districts and other organized agricultural water use associations to encourage an examination of ...whether they could transfer salvaged waters beyond their boundaries....as one way for them to make conservation efforts more profitable."

Option 1: Retain the recommendation. Many of these organizations may not be aware of this opportunity under state law. These entities control a large share of the water used in irrigation in Montana.

Option 2: Delete the recommendation. It may be legally and technically difficult to implement.

SWPAC Recommendation: *Retain the recommendation (Option 1).*

E. "...publicize innovations in the way water rights are changed and transferred...which have resulted in profitable transactions and better utilization of the resource."

Option 1: Retain the recommendation. People should be aware of their opportunities as water rights owners.

Option 2: Delete the recommendation. This objective could be accomplished through the general public education process recommended for adoption under C above.

SWPAC Recommendation: *Delete the recommendation (Option 2) for the reasons cited.*

Seek additional funding assistance for projects improving agricultural water use efficiency.

A. "...continue to monitor and support federal funding to programs and projects that improve agricultural water use efficiency in Montana."

Option 1: Retain the recommendation. Support should continue for the cost-sharing programs of ASCS and SCS, as well as others.

Option 2: Delete the recommendation. Some consider this to be the sort of public support for private businesses that should end.

SWPAC Recommendation: *Retain the recommendation (Option 1) for the reasons cited.*

B. "...the Water Development Program...should give special consideration to project proposals that improve the water use efficiency of existing agricultural projects.

Option 1: Retain the recommendation. Special consideration is appropriate given the importance of irrigated agriculture to Montana and the volume of water involved.

Option 2: Delete the recommendation. All proposals for water development grants and loans should be treated equally and judged solely on the merits.

SWPAC Recommendation: *Retain the recommendation (Option 1) for the reasons cited.*

C. "...the legislature should adopt a resolution urging Congress to appropriate funds from the Pick-Sloan Missouri Basin Program to rehabilitate existing irrigation projects..."

Option 1: Retain the recommendation. This is a valid way for the federal government to fulfill its promises to the upper Missouri Basin states under the 1944 Flood Control Act. The rehabilitation of Montana's aging irrigation infrastructure should be a high priority, but will be expensive. Federal funds will be crucial to accomplishing this goal.

Option 2: Delete the recommendation. Some oppose additional federal subsidies for irrigated agriculture.

Option 3: Pursue Pick-Sloan funding through both legislative and administrative channels.

SWPAC Recommendation: *Retain the recommendation (Option*

1) and pursue Pick-Sloan funding through other channels (Option 3).

Clarify laws governing water rights changes and transfers to increase economic incentives for efficiency.

A. "...allow the change and transfer of a private consumptive water right to a non-consumptive, instream flow right of a public agency."

Option 1: Retain the recommendation. By expanding the potential market for salvaged water, the incentive for private individuals to improve their efficiency will increase. Economics will play the most important role in getting water right holders to become more efficient. Education is an inadequate incentive by itself for individuals to accomplish this goal, and greater regulation is too onerous an alternative.

Option 2: Delete the recommendation. These matters are considered under the Instream Flow Protection plan section. The agricultural water use efficiency plan section should be rewritten to emphasize the advantages to irrigators of greater efficiency.

SWPAC Recommendation: *Delete the recommendation (Option 2) for the reasons cited.*

B. "...allow temporary emergency exemptions to the requirement for department approval of voluntary water right changes."

Option 1: Retain the recommendation. It provides greater market flexibility in drought years or in other unusual situations.

Option 2: Delete the recommendation. The matter is considered under the Instream Flow Protection plan section.

SWPAC Recommendation: *Delete the recommendation (Option 2) for the reasons cited.*

C. "...clarify that appropriators may lease water to other individuals, corporations, or public agencies subject to compliance with...change approval requirements."

Option 1: Retain the recommendation. It increases the flexibility of willing buyers and sellers to develop mutually acceptable transactions involving the transfer

of water.

Option 2: Delete the recommendation. The recommendation is covered under the Instream Flow Protection plan section.

SWPAC Recommendation: *Delete the recommendation (Option 2) for the reasons cited.*

D. Draft legislation to clarify who has the right to salvaged water, to include a statement of intent for the adoption of ". . .rules governing the processing and review of change applications so that any change in a water right will not result in more water being consumed..." and "...better assure that the rights of existing water users are protected..."

Option 1: Adopt the recommendation. In part, this is a new recommendation that does not appear in the draft plan section because this is already the DNRC policy. However, the law appears to need clarification and a clear statement of legislative intent.

Option 2: Dismiss the recommendation. Existing procedures are in place and working adequately.

SWPAC Recommendation: *Adopt the recommendation (Option 1) for the reasons cited.*

Regulate water use in cases where water is being wasted.

A. "...adopt appropriate rules on...enforcement of the waste statute."

Option 1: Retain the recommendation. An effective program to improve irrigation efficiency will require this "stick" as well as the "carrots" of funding and other economic incentives.

Option 2: Delete the recommendation. Defining when "waste" occurs, and applying it uniformly to the multitude of irrigation situations across the state, is not possible given the cost and time currently required to accomplish the task.

SWPAC Recommendation: *Delete the recommendation Option 2) for reasons cited.*

Other changes as a result of Public Comment

A. Remove the "tax" and "water bank" options from the plan section text.

Option 1: Retain the discussion. These options were considered, and the purpose of this section of the plan is merely to describe all the options considered.

Option 2: Delete the discussion. Many commentors were concerned that these options were being actively pursued by the State Water Plan Advisory Council, leading to unnecessary opposition to the plan and the diversion of attention away from the actual recommendations. Perhaps this format of written presentation should be reconsidered.

SWPAC Recommendation: *Delete the discussion (Option 2) for the reasons cited.*

MONTANA WATER PLAN

Management Section

Subsection: Water Information System

Introduction 2
Background 2
Policy Statement 3
Issue and Recommendation 3
Issue 3
Recommendation Adopted by the State Water Plan Advisory Council 3
Preliminary Recommendations Deleted by the State Water Plan Advisory Council 3
Plan Implementation 3
Legislative Action 3
Administrative Action 3
Financial Requirements and Funding Strategies 4
Time Schedule 5

WATER RESOURCES DIVISION • DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

1520 EAST SIXTH AVENUE • HELENA, MONTANA 59620 - 2301 • (406) 444-6637

INTRODUCTION

Information on the quantity, quality, distribution, and allocation of Montana's water resources provides a foundation for sound planning and management decisions. Under Montana law, the Montana Department of Natural Resources and Conservation (DNRC) has a mandate to "gather from any source reliable information relating to Montana's water resources and prepare therefrom a continuing comprehensive inventory of the water resources of the state (Section 85-1-203(1), MCA). Moreover, DNRC is required "in cooperation with other state agencies, institutions, colleges, and universities to establish and maintain a centralized and efficient water resources data management system sufficient to make available and readily accessible, in a usable format, to state agencies and other interested persons, information on the state's water resources, out-of-state water resources that affect the state, existing and potential uses, and existing and potential demands" (Section 85-2-112(4), MCA).

Since 1986, the DNRC has cooperated with the Natural Resource Information System (NRIS), a program of the Montana State Library, in developing a comprehensive water resources data management system. Known as the Montana Water Information System (MWIS), the system is designed to serve as a clearinghouse for all water data sources and users. Developed under the guidance of representatives from several state and federal water management agencies, MWIS does not duplicate the efforts of these organizations, but coordinates information exchanges among state, federal, and private water users and managers.

BACKGROUND

Given the wide variety of water uses in the state of Montana, it is not surprising that there are several organizations involved in collecting and maintaining many different types of water resource information. DNRC, the Department of State Lands, the Department of Health and Environmental Sciences, and the Department of Fish, Wildlife and Parks all have active programs that involve the collection and use of water quantity or quality data. There is also a vigorous program related to the development of a water rights data system at DNRC. The Statewide Groundwater Information Center located at the Montana Bureau of Mines in Butte serves as a storage and retrieval facility for groundwater data. In Bozeman, the Surface Water Information Center of the Water Resources Center at Montana State University serves as a data repository for water-related research conducted in the university system. On the federal level, agencies such as the U.S. Geological Survey, the Soil Conservation Service, the U. S. Forest Service, the Environmental Protection Agency, the Bureau of Land Management, and the Bureau of Reclamation are active in the water data management area. Finally, there are a number of private-sector consulting firms and resource development companies whose activities often include the collection of water data.

Each organization typically collects water-related information for its own purposes and, for a variety of reasons, this often results in a duplication of efforts. First, there is often a large amount of data being collected and maintained in a variety of formats, ranging from manual systems to extensive computer data bases. In many cases, the structure or content of the data bases may be incompatible, and thus it may be more efficient for an agency to collect new data rather than convert existing data to a format it can use. Second, because there are no standards for collecting and maintaining water-related information, there is often a question as to the reliability and usability of existing data. Finally, it is often more efficient to collect new data than to spend time trying to find out which organization has the needed information.

The Montana Water Information System was developed to help eliminate the duplication of data management efforts and to facilitate access to needed information. The first step in developing the program was to form a Water Resources Data Management System Advisory Committee. Composed of representatives from several state water data collection and management agencies, the committee provided policy guidance in designing a water data management system under the NRIS program. After meeting several times in 1986, the committee concluded that a new, centralized data system that ties all users into a single information base would be too costly to implement, too difficult to design for all uses, and, given the diverse needs of users, too complex for all users to operate. Instead, the Committee recommended developing a central access point to all the various data sources in the state. In other words, the MWIS program does not serve as a central data storage facility, but rather as a means to identify sources of important data and then coordinate access to those sources. This decentralized data base strategy enables each agency to continue managing its data to meet its own specific needs, and allows for maximum sharing of water data among participating agencies, as well as facilitating centralized data collection for specific issues or basins.

The objectives of the MWIS program are: (1) to determine the water data storage and retrieval needs of Montana data users; (2) to design a water data storage and retrieval system that meets user needs in Montana; (3) to establish

a central point of contact and to coordinate quick and efficient access to existing sources of water information for any particular geographic area of the state; (4) to design and promote a quality control system to ensure the usefulness of the data; and (5) to identify potential and existing duplicative data collection efforts for the purposes of reducing or eliminating such efforts and reducing the resultant costs.

To achieve these objectives, the following activities are currently underway and scheduled for completion by June 1989: (1) developing a data base on water resources information sources in the state; (2) accessing other data bases; (3) designing quality control criteria to ensure the compatability of data management activities; and (4) surveying other state water information management systems. Once these initial activities have been completed, the MWIS program will be maintained and refined as advances in data management technology occur.

STATE WATER PLAN POLICY STATEMENT

A comprehensive water information system is needed to improve the management of Montana's water resources by promoting coordination among water managers and users, as well as eliminating duplication of effort in the collection, storage, and retrieval of water-related information.

ISSUE AND RECOMMENDATION

Issue

The basic issue regarding water data management is: What type of information management system will best meet the needs of water resource decision makers while responding to the legislative mandate for an efficient water data management program?

Recommendation Adopted by the State Water Plan Advisory Council

Sustaining the ongoing MWIS program is recommended as the most appropriate approach to managing Montana's water resource data. This program serves the diverse needs of water data users by providing a central access point to decentralized data bases. It eliminates the duplication of effort by enabling each agency to continue managing its own data to meet its specific needs while allowing for the maximum sharing of water data among participating agencies. The existing program also improves the efficiency and effectiveness of water management activities by identifying and disseminating water-related information in a timely and efficient manner.

MWIS also facilitates the use of such state-of-the art information management technology as a Geographic Information System. Using such a system, information can be assimilated and presented in a variety of formats, from technical reports to maps, as needed in regulatory, management, planning, and research decision making. Given the different needs of various water data users, this type of system is widely recognized as the most efficient and cost-effective approach to developing a comprehensive, integrative water data management system.

Preliminary Recommendations Deleted by the State Water Plan Advisory Council

None of the preliminary recommendations in this plan section were deleted by the State Water Plan Advisory Council.

PLAN IMPLEMENTATION

Legislative Action

The legislature would not need to revise or adopt legislation to authorize the development of a water data management system. However, it is critical that the legislature provide the financial support needed to maintain, refine, and enhance the existing MWIS program.

Administrative Action

Several administrative actions are necessary to implement the recommended option. These actions are described according to the functions of the MWIS staff and the MWIS Advisory Committee.

A. MWIS Staff

1. Complete the current program activities and produce a report that summarizes the findings;

2. Maintain a central access point to data for water information users;

3. Maintain the staff needed to ensure the proper operation of the MWIS program;

4. Receive direction from the MWIS Advisory Committee whose function is to assist the program staff with the development and operation of the data management program;

5. Seek funding for additional microcomputers (with modems) to accommodate increased public use of MWIS by allowing more than one user to access MWIS at a given time, as well as allowing remote access to the system.

6. Cross-train MWIS, NRIS, and State Library staffs to familiarize them with the various data bases being accessed by MWIS, thus enhancing program capabilities to respond to data requests.

7. Provide training to system users to encourage remote and independent use of MWIS.

8. Develop a system for tracking current and anticipated data collection efforts in Montana to enhance information sharing among data users and to discourage duplication of effort.

B. MWIS Advisory Committee

1. Expand the advisory committee to include experts in Geographic Information System(s) and natural resources management from state and federal agencies;

2. Provide guidance in identifying computer needs, developing data standards, and identifying funding sources for the acquisition of selected types of data;

3. Prioritize what data are needed to meet the most critical water resource issues facing Montana; and

4. Coordinate the development and utilization of new data management tools, such as a Geographic Information System.

Financial Requirements and Funding Strategies

It is estimated that funding in the amount of $100,000 is needed during the 1990-1991 biennium to maintain and further develop the MWIS program. This funding is being sought through four basic approaches:

1. Negotiate interagency agreements to provide specific data management services for compensation, approximately $25,000 was acquired during fiscal years 1988 and 1989 and additional agreements are expected in the future.

2. Apply for grants and seek non-state funding. For the 1990-1991 biennium, NRIS has applied for a Renewable Resources Development Grant of $99,806. Approximately 36 percent of the grant, or $35,930, would be allocated to MWIS. NRIS has also applied for a Water Development Grant of $45,510.

3. Request general funds in the event that grants are not available. Although a request for such funds was not made for the 1990-1991 biennium, the director of the Budget Office has indicated he will consider a late request if grant funding is not obtained.

4. Investigate the feasibility of relying on user fees to partially fund the activities of MWIS.

Time Schedule

	Activity	Responsibility	Deadline
A.	Development and Implementation Tasks		
	1. Design MWIS program	MWIS/Advisory Committee	August 1988
	2. Establish central point of contact	MWIS	September 1988
	3. Expand Advisory Committe Committee	MWIS/Advisory	December 1988
	4. Design quality control criteria	MWIS/Advisory Committee	June 1989
	5. Train State Library and NRIS staff	MWIS	March 1990
	6. Provide on-line and remote access to MWIS	MWIS	October 1990
	7. Train users of MWIS	MWIS	June 1991
	8. Develop system for tracking data collection efforts	MWIS	October 1991
B.	Ongoing Tasks		
	1. Determine water data needs and sources	MWIS/Advisory Committee	
	2. Access data bases	MWIS	
	3. Promote quality control criteria	MWIS	
	4. Coordinate the development and utilization of data management tools	MWIS/Advisory Committee	

MONTANA WATER PLAN

Management Section

REVISED DRAFT

1988

Subsection: Instream Flow Protection

Introduction 2
Background 2
Policy Statement 2
Issues and Recommendations 3
  Issues 3
  Recommendations Adopted by the State Water Plan Advisory Council 3
  Preliminary Recommendations Deleted by the State Water Plan Advisory Council 4
Plan Implementation 4
  Legislative Action 4
  Administrative Action 4
  Financial Requirements and Funding Strategies 5
  Time Schedule 5

WATER RESOURCES DIVISION • DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

1520 EAST SIXTH AVENUE • HELENA, MONTANA 59620 - 2301 • (406) 444-6637

INTRODUCTION

Water uses may be differentiated on the basis of whether they involve withdrawing water from a source of supply. Offstream uses divert water from a natural watercourse. This withdrawn water is then either used and returned to the watercourse or completely consumed. By contrast, instream uses maintain a specified level of flow in the natural watercourse.

The allocation of water in Montana has traditionally focused on the important task of satisfying offstream uses for domestic and commercial purposes, irrigated agriculture, industry, and mining. While these offstream uses remain critical to the growth and development of the state, there has been an increasing demand to leave water in the stream, unavailable for offstream diversion below a specified level, for fish, wildlife, recreation, and water quality. Montana law (Section 85-1-101(5), MCA) provides that "The water resources of the state must be protected and conserved to assure adequate supplies for public recreational purposes and for the conservation of wildlife and aquatic life." In addition, Section 75-5-101(1), MCA states that "It is the public policy of this state to conserve water by protecting, maintaining, and improving the quality and potability of water for public water supplies, wildlife, fish and aquatic life, agriculture, industry, recreation, and other beneficial uses."

Based on these and other statutory policies, natural resource management agencies are taking steps to protect instream flows through a variety of programs and practices. The purpose of this plan component is to identify the issues involved with maintaining and enhancing instream flows, and to present recommendations for resolving them.

BACKGROUND

In 1969, the state took its first steps to statutorily allocate water for instream use. The Legislature established so-called "Murphy Rights" on the unappropriated waters of twelve "blue ribbon" trout streams to maintain stream flows necessary for the preservation of fish and wildlife habitat (Section 89-801(2), RCM, 1947). In 1973, state efforts were expanded with the enactment of the Montana Water Use Act, which not only provided an opportunity to reserve water for future diversionary and consumptive uses, but also for maintaining instream flows (Section 85-2-316, MCA). To date, instream reservations have been established only in the Yellowstone River Basin. Several other streams have received instream flow protection pursuant to Section 85-2-223, MCA, which allows the Montana Department of Fish, Wildlife and Parks to represent the public in adjudication proceedings for purposes of documenting public recreational uses of water established prior to 1973. Instream flows are also maintained on several streams by releasing water from reservoirs during critical times of the year. Finally, the Department of Natural Resources and Conservation (DNRC) may condition water use permits for large appropriations on the basis of reasonable use criteria which include the protection of instream flows (Section 85-2-311(2)(c), MCA).

In addition to state efforts to protect instream resources, federal agencies and tribal governments have also taken steps to ensure the maintenance of instream flows. The Wild and Scenic Rivers Act (16 U.S.C. 127) has been used to protect instream resources on the North, South, and Middle Forks of the Flathead River, and on one reach of the Missouri River. Federal land management agencies are studying the possibility of adding rivers to the wild and scenic river system, thereby protecting additional instream resources. Through its special use permitting process, the U.S. Forest Service also protects instream flows by regulating access to developers seeking to divert water within the national forests (43 U.S.C. 1761-1771 (1982)). The federal reserved water rights doctrine may give federal resource management agencies and tribal governments another mechanism to manage instream resources. Finally, tribal governments, such as the Confederated Salish and Kootenai Tribes of the Flathead Reservation, are claiming aboriginal fishing rights to protect instream flows under their respective treaties with the United States.

Although the state of Montana has made significant progress in protecting instream flows, some of the existing programs and practices need refinement if they are to be effective. In certain cases, new legal and institutional mechanisms also may be needed to enhance instream resources.

STATE WATER PLAN POLICY STATEMENT

Instream flows are an important use of water, and mechanisms should be developed and refined to protect and enhance instream resources. However, instream flow protection activities must not adversely affect existing water rights and should be weighed and balanced against alternative future uses of water.

ISSUES AND RECOMMENDATIONS

Issues

Four issues need to be addressed with respect to instream flow protection. They are:

1. Inadequate consideration of instream flow values in the water use permitting process.
2. Insecurity of instream water reservations.
3. Need for enhancement of instream resources in dewatered basins.
4. Need for research on instream resource management decisions.

Recommendations Adopted by the State Water Plan Advisory Council

1. Permitting Process

The existing criteria for issuing a water use permit, as outlined in Section 85-2-311, MCA, may not adequately provide for the consideration of instream flow values. It is not clear whether the water permitting process allows for the consideration of instream flow values other than when instream flow water rights have been established. To date, many streams in Montana with important instream values do not have the necessary protection of an instream flow right. Water permits for new consumptive use continue to be granted before instream flow rights are established. Consequently, in certain areas of Montana, instream resources are subjected to further depletions.

One recommendation on this issue is to promote more timely acquisition of instream flow reservations by assigning applicants a priority date at the time of application (instead of several years later when final reservation decisions are made). Under this approach a "base" priority date would also be established for all reservants at the time the first correct and complete application is submitted for any given stream reach. Once such an application is accepted, all qualified applicants with an interest in the stream (including those needing water for offstream purposes) would have the opportunity to submit competing applications within a specified time period and receive the same base priority date. In making its final decision on the applications, the Board of Natural Resources and Conservation (BNRC) would also weigh and balance the reservation requests against water use permits granted since the base priority date. The BNRC could subordinate reservations to water use permits if the purpose of the reservations is not substantially impaired.

Another approach to address this issue is to incorporate a provision into Section 85-2-311(1), MCA allowing water users to object to new water use permits and changes of water rights on the basis of potential adverse effects on public health. The State Water Plan Advisory Council is not currently recommending this approach, but wishes to recieve public comment on the idea.The opportunity to object could include any group or individual who depends on a minimum streamflow to maintain water quality for domestic uses, or may be limited to those with a water quality discharge permit. Any group or individual objecting would assume the burden to show how and why the proposed permit would have adverse public health effects.

2. Security Of Instream Reservations

The current reservation process may not provide adequate security to instream reservations. If the BNRC finds that the total amount of an instream flow reservation is not needed to fulfill its purpose, and a qualified applicant can show that its need outweighs the need of the instream reservation holder, the excess water may be reallocated to the competing applicant (Section 85-2-316(11), MCA). Such actions may not occur more than once every five years. Moreover, all reservations are to be reviewed at least once every ten years, and if the objectives of the reservation are not being met, the Board may extend, revoke, or modify the reservation (Section 85-2-311(10), MCA).

The recommended solution to this issue is to evaluate the relative security of instream flow reservations after the BNRC completes its review of the Yellowstone River reservations in 1988. This strategy is recommended because it is difficult to evaluate the security of instream reservations, and thus determine what action is needed, without first going through the process of making a ten-year review. The evaluation would identify and assess all the problems associated with the security of instream reservations.

3. Enhancing Instream Flows

Instream resources are often threatened in streams that are subject to regular or periodic low flow conditions. The issue here is not how to maintain existing flow levels, but how to increase or enhance the flow levels in certain streams.

The first recommendation to address this issue is to allow public entities to lease water rights from offstream or

consumptive uses for purposes of protecting instream flows in important stream reaches. This opportunity is entirely voluntary and would not jeopardize existing offstream water rights. It would result in the temporary transfer of an offstream water right to enhance instream flows during critical low flow periods. Under the lease agreement, the offstream water user would still hold the water right and be compensated for leaving water in the stream during certain years.

A second recommendation is to support public entities in purchasing or leasing water stored in reservoirs above dewatered streams and in revising the operating procedures on such reservoirs. In addition, the feasibility of new storage projects to enhance instream resources should be assessed. Finally, cooperative solutions at the local level, such as irrigation scheduling, are supported.

4. Research

To improve the management of instream resources, research is needed to evaluate:

a. The effect of return flows on the maintenance and enhancement of instream resources.

b. Instream flow quantification methods to determine if existing methods result in an inappropriate amount of water for instream resources.

c. The physical availability of water to meet the demands for instream resource protection.

Preliminary Recommendations Deleted by the State Water Plan Advisory Council

Several of the preliminary recommendations in the instream flow plan section were deleted by the State Water Plan Advisory Council. First, the preliminary recommendation to allow public entities to object to new water use permits and changes of waters on the basis of potential adverse impacts on fish and wildlife resources, public recreational opportunities, and public health has been deleted.

Second, the preliminary recommendation to remove the 50 percent cap on the amount of water that can be reserved for instream uses has also been deleted. Third, the preliminary recommendations to allow the purchase and emergency transfer of offstream water rights for instream uses have been deleted. Finally, the preliminary recommendations to conduct research on (1) new methods to quantify instream flows necessary to maintain recreation, scenic, and asesthetic values; and (2) the feasibility of inter-basin transfers and groundwater sources as alternative ways to enhance instream resources have also been deleted.

PLAN IMPLEMENTATION

Legislative Action

The legislature will have to revise Section 85-2-316(9), MCA to allow the BNRC to establish a base priority date for all reservants at the time the first correct and complete application is submitted for a particular stream reach; to define the time limit within which competing applications must be submitted; and to allow the Board to subordinate reservations to water use permits granted since the base priority date.

The legislature would also have to enact a statute to allow the voluntary leasing of water from offstream uses to instream uses. Some of the statutory modifications that may be needed include changing the definition of "appropriate" in Section 85-2-102(1), MCA and clarifying the change statute in Section 85-2-402(2)(b), MCA. It may also require a modification or clarification in the abandonment statute in Section 85-2-404, MCA.

Administrative Action

To determine the relative security of instream flow reservations, the DNRC will, in cooperation with the Instream Flow Technical Advisory Committee, evaluate both the five-year and ten-year review processes after the BNRC completes the Yellowstone River reservation review. The DNRC will prepare a brief report for the State Water Plan Advisory Council (SWPAC) outlining the options and recommendations for addressing this problem.

To facilitate research on the three areas outlined above, the DNRC will work in cooperation with the Water Resources Research Center (WRRC) at Montana State University. The focus of this cooperative effort will be: (1) to identify leading researchers in the topic areas; (2) to survey the current state of research in each of the areas; (3) to consult with resource management agencies and water users to identify research needs; and (4) to outline research strategies, including financial requirements and sources of funding. Research proposals in these three areas will receive a high priority by the Research Center for funding. Periodical "progress reports" will be made to the SWPAC.

To assess the feasibility of new storage projects to enhance instream flows in dewatered basins, this issue should be incorporated into a state water plan section devoted exclusively to water storage projects.

Financial Requirements and Funding Strategies

Funding may be necessary to conduct research on the three areas outlined above. Periodic progress reports to the SWPAC will outline the financial requirements and funding strategies for research.

Time Schedule

Activity	Responsibility	Deadline
A. Development and Implementation Tasks		
1. Draft legislation	DNRC	January 1989
2. Enact legislation	Legislature	April 1989
3. Evaluate security of instream reservations	DNRC	June 1989
B. Ongoing Tasks		
1. Reservoir management and cooperative solutions	DFWP, DNRC, others	
2. Research	DNRC, WRRC	

MONTANA WATER PLAN
Management Section

REVISED DRAFT

1988

Subsection: Agricultural Water Use Efficiency

Introduction 2
Background 2
Policy Statement 3
Issues and Recommendations 3
  Issues 3
  Recommendations Adopted by the State Water Plan Advisory Council 3
  Preliminary Recommendations Deleted by the State Water Plan Advisory Council ... 3
Plan Implementation 3
  Legislative Action 3
  Administrative Action 4
  Financial Requirements and Funding Strategies 4
  Time Schedule 4

WATER RESOURCES DIVISION • DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

1520 EAST SIXTH AVENUE • HELENA, MONTANA 59620 - 2301 • (406) 444-6637

INTRODUCTION

Agriculture is Montana's largest business, providing about one-third of the total state income from primary industries. Irrigation contributes roughly one-quarter of agricultural income and, importantly, stabilizes agricultural production during the all-too-frequent dry years. Satisfying agriculture's vital demand for irrigation water requires the development and extension of water supplies through a combination of management strategies, including water storage. Another method is to improve the efficiency with which water is used.

The benefits of improved agricultural water use efficiency are diverse and include:

1. Improved ability to withstand periods of drought.
2. Increased irrigated acreage through the use of saved water.
3. Improved performance of aging irrigation facilities.
4. Increased irrigators' profits when the benefits of more efficient water use (increased crop production and sometimes decreased operating costs) are greater than the investment cost.
5. Reduced soil erosion and improved water quality.
6. Help in meeting the needs of current water users once the prior reserved rights of Indian tribes and the federal government are quantified and put to use.

Along with these benefits, improving water use efficiency may be important in terms of interstate water allocation. The U.S. Supreme Court has indicated that state conservation efforts will be considered if it is called upon to divide the waters of interstate rivers. The Court could decide to award smaller shares to states making no effort to increase water use efficiency, reasoning that these states could meet their future needs by saving more water.

BACKGROUND

Any strategy to improve agricultural water use efficiency must reflect an appreciation of several difficulties. First, because each irrigation situation is different, improving water use efficiency requires a case-by-case consideration of a number of complex geologic, hydrologic, and economic factors. Second, irrigation efficiency improvements can be very expensive. Third, water uses within a basin can be extremely interdependent. One irrigator's return flows or recharge to ground water can be another irrigator's water supply. Therefore, improving the efficiency of one water user could adversely affect the water supply of others. Fourth, while Montana law protects water users from adverse effects caused by other people's changes in water use, the law does not clearly establish who owns the right to water saved without adverse effects to others.

A number of options are already available to overcome some of these problems. The Montana Cooperative Extension Service, local conservation districts, and a number of other state and federal agencies provide technical assistance and information on water conservation measures. The Montana University System also supports research to improve our understanding of the complex factors that affect irrigation efficiency. Research may also help develop improved irrigation practices and technologies.

Funding assistance is available for irrigation efficiency improvements from a number of sources. These sources include the U. S. Agricultural Stabilization and Conservation Service, Farmers Home Administration, Soil Conservation Service, and the Montana Water Development Program administered by the Department of Natural Resources and Conservation (DNRC).

Given that one irrigator's water losses can be another irrigator's water supply, improvements in water use efficiency may adversely affect some water users. In light of this, the law provides potentially affected parties the right to object to certain changes in water use. Accordingly, the objective of increased water use efficiency is not to reduce the amount of water that is later reused. Rather, it is to decrease losses such as: (1) water used by weeds or other unwanted vegetation; (2) evaporation of standing water; (3) water that is not consumed but becomes inaccessible for reuse; or (4) water that becomes unusable because its quality has deteriorated.

The final difficulty stems from the fact that our water law is not clear on the question of who holds the right to salvaged water. In Montana, water rights are based on the amount of water historically put to beneficial use. If an irrigator decreases his use over time because of improved efficiencies, the legal status of the water no longer needed can be called into question. By one interpretation, this part of the water right would be considered abandoned and the water would go to the next junior user. Obviously, this would not encourage increased efficiency. Under a second interpretation, an irrigator who increases his efficiency retains the right to the salvaged water, so long as other water users would not be adversely affected by the change in water use. The irrigator may then have the option to expand his irrigated acreage, sell, or otherwise benefit from the right to the salvaged water. Using this interpretation, an irrigator may be rewarded, rather than penalized, for becoming more efficient.

STATE WATER PLAN POLICY STATEMENT

Voluntary improvements in agricultural water use efficiency that expand water supplies for agriculture and other uses should be encouraged. Where improvements in water use would adversely affect other existing beneficial uses, such improvements should not be allowed.

ISSUES AND RECOMMENDATIONS

Issues

To encourage voluntary improvements in agricultural water use efficiency, three groups of issues must be successfully addressed.

1. Adequate information and educational opportunities must be readily available to irrigators, and research must be continued. How difficult is it for irrigators to obtain this information? Is it presented in a manner that is clear and persuasive? Are there adequate data for evaluating applications for water right changes in terms of adverse effects upon other water users? Is improving irrigation technologies and practices receiving adequate priority in the competition for agricultural research dollars?

2. Funding assistance may be necessary for those wishing to improve irrigation efficiency. Are existing programs capable of meeting future demands for funding? Are the kinds and levels of support adequate? Should the state Water Development Program give special consideration to irrigation efficiency-improving proposals? Are other sources of funding available, particularly for the rehabilitation and betterment of aging irrigation projects?

3. Laws clarifying who owns the right to salvaged water must be enacted to provide clear incentives for more efficient use. But when an irrigator increases efficiency, how will the amount of water salvaged be determined? Will it include water that otherwise would have been return flows? How will other water users be protected from adverse effects? Should restrictions be placed on how the saved water can be used?

Recommendations Adopted by the State Water Plan Advisory Council

In response to these issues, the following recommendations have been adopted:

1. The adequacy and effectiveness of existing information and research programs should be evaluated. Information should be provided to the state's irrigation districts and other organized irrigation associations on the availability of technical and financial assistance for improving irrigation efficiency. Further, these entities should be informed of their option under state law for the use of salvaged water.

2. Support for federal programs providing financial and other local level assistance to irrigators should be maintained. Special consideration should be given in the state Water Development Program for projects that would improve the efficiency of existing irrigation systems. Funds from the federal Pick-Sloan Missouri Basin Program should be allocated for use in the rehabilitation and betterment of irrigation projects.

3. The law should clearly provide that if an irrigator salvages water, he maintains the right to use the water. However, salvaged water must be defined to include only water that has not been available for reuse by other water users.

Preliminary Recommendations Deleted by the State Water Plan Advisory Council

Many of the preliminary recommendations in the earlier draft of this plan section have been deleted because they are more directly related to the Instream Flow Protection section of the state water plan. These include the recommendations to allow the change and transfer of a consumptive water right to an instream flow use; to allow temporary emergency exemptions for water right changes; and to allow the leasing of private water rights. The preliminary recommendation to adopt rules governing enforcement of the waste statute has also been deleted. The preliminary recommendation to publish brochures or other information on basin closure, abandonment of water rights, water right enforcement, and water right changes and transfers were deleted from this plan section. The Council recommended that a public education effort on Montana water law should be undertaken, but as a general function of the state water planning process. Finally, the preliminary recommendation to create an Irrigation Efficiency Task Force was deleted.

PLAN IMPLEMENTATION

Legislative Action

To provide effective financial support, the legislature should adopt a resolution urging Congress to authorize and

appropriate funds from the Pick-Sloan Missouri Basin Program for the rehabilitation of irrigation projects. Such funding can be justified as compensation for water development projects promised to Montana under the 1944 Flood Control Act, but never received.

Legislation also should be passed that clarifies the rights of water users to salvaged water. Such legislation should carefully define "salvaged water" to include only the saved water that otherwise would have become consumed or unusable for other existing appropriators. The use of salvaged water for a different purpose, in a different place, from a different point of diversion, or from a different source of storage would require a change in water right in accordance with Montana law. A time period could be established within which the salvaged water must be put to use before the right to it will be considered abandoned.

Administrative Action

To improve education and research on irrigation efficiency, the DNRC, in cooperation with the Montana Cooperative Extension Service and the U.S. Soil Conservation Service, should evaluate the effectiveness of existing research and public education programs. A report should be prepared to the State Water Plan Advisory Council that sets forth recommendations for any improvements in these programs.

The state's irrigation districts and other organized agricultural water user groups should be informed of available technical and financial assistance for improving irrigation efficiency. They should also be informed of the opportunity to use salvaged water if the legislation recommended above is enacted.

To assure continued federal government support for improving agricultural water use efficiency, the DNRC should continue to monitor and support federal funding for programs or projects that improve agricultural water use. In addition, the Water Development Program should give special consideration to project proposals that improve the efficiency of existing irrigation projects. The Governor's Office and the DNRC should also pursue all administrative and intergovernmental channels available to obtain Pick-Sloan funding for irrigation project rehabilitation.

Financial Requirements and Funding Strategies

It is anticipated that the administrative actions can be accomplished with current levels of funding.

Time Schedule

Activity	Responsibility	Deadline
A. Development and Implementation Tasks		
1. Draft Legislation	DNRC	January 1989
2. Enact Legislation	Legislature	April 1989
3. Contact irrigation districts and water users' associations	DNRC	May 1989
4. Complete evaluation report on irrigation efficiency information and research	DNRC	September 1989
B. Ongoing Tasks		
1. Rank irrigation efficiency project proposals to the Water Development Program	DNRC	
2. Monitor and support federal funding, including Pick-Sloan Program Funding	DNRC/Governor's Office	

MONTANA WATER PLAN

Management Section

Subsection: Federal Hydropower Licensing and State Water Rights

Introduction 2
Background 2
Policy Statement 3
Issue and Recommendations 3
  Issue 3
  Recommendations Adopted by the State Water Plan Advisory Council 3
  Preliminary Recommendations Deleted by the State Water Plan Advisory Council 3
Plan Implementation 4
  Legislative Action 4
  Administrative Action 4
  Financial Requirements and Funding Strategies 4
  Time Schedule 4

WATER RESOURCES DIVISION • DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

1520 EAST SIXTH AVENUE • HELENA, MONTANA 59620 - 2301 • (406) 444-6637

INTRODUCTION

Since 1920, the Federal Power Act (FPA) (16 USC 791(1982)) has required the Federal Energy Regulatory Commission (FERC) to license any hydropower project that: (1) is located on federal land; (2) uses water impounded by a federal dam; (3) is located in, or uses water from a navigable stream; or (4) produces power which affects interstate commerce. Following the U.S. Supreme Court decision in First Iowa Hydro-Electric Cooperative v. Federal Power Commission, 328 U.S. 152 (1946), FERC is not bound by state laws or policy in determining the number and location of hydropower projects it may license within a state. Not only does FERC's authority to site hydropower dams preempt all state decision-making on the issue, but FERC contends it is not required to consider Montana's water law system of prior appropriation. This relationship between FERC and the state has frustrated the state's attempt to manage its water resources by: (1) not allowing the state to optimize water use when a hydropower project virtually forecloses all future upstream uses; and (2) eroding the state's authority to control the allocation and use of its water.

BACKGROUND

In 1920, when almost one-third of the United States' energy needs were supplied by hydropower, Congress enacted the Federal Water Power Act in response to fears that the hydropower industry could be concentrated in the hands of a few major power companies. The law was amended in 1935 to become the Federal Power Act (FPA) and is administered by the Federal Energy Regulatory Commission. In passing the FPA, Congress seemed to create a balance between state and federal governments in authorizing hydropower projects. The FPA required a license from FERC, but also provided for the application of state water law. However, in its First Iowa decision, the U.S. Supreme Court held that a hydropower project could be federally licensed even though the applicant was in violation of Iowa laws that required a state permit to build a dam and prohibited the dewatering of a stream. The Court's decision was based on grounds that a state license, as a condition precedent to federal action, would: (1) give the states veto power over projects that Congress intended FERC to regulate; (2) allow the states to control the comprehensive planning that congress entrusted to FERC; (3) result in a duplicate system of federal and state licensing that would be unworkable; and (4) make FERC the agent of the states for purposes of enforcing state laws.

Based on First Iowa and subsequent decisions, FERC's position is clear: an applicant for a federal hydropower license does not have to acquire a state water right prior to issuance of the license. In addition, the license may contain a special article allowing additional time to acquire the state water rights necessary to operate the project. If a federal license is issued, the licensee acquires the federal power of eminent domain and may condemn existing rights to acquire water for the project, provided that the right-holder is compensated. Thus, a FERC licensee can be inserted into the water rights system without ever having to comply with state water laws.

The Montana Constitution provides that all waters in the state are the property of the state for the use of its people and are subject to appropriation as provided by law for all beneficial uses, including hydropower. Since passage of the Montana Water Use Act of 1973, an appropriation of water requires a permit from the Department of Natural Resources and Conservation. Disruption of this appropriation system of water rights is only the most obvious and fundamental effect for FERC's disregard of state policies, procedures, and laws. Under the provisions of the Federal Fish and Wildlife Coordination Act and the Electric Consumers Protection Act, FERC must consult with state and federal fish and wildlife agencies when considering the issuance of a federal license (or exemption from licensing) for a proposed hydropower project. In many instances, this consultation leads to the imposition of minimum instream flow requirements on a project's federal license, often in disregard of state water law. Another problem centers on the fact that some hydropower projects may require a large share of the available flow at a certain point on a river. If FERC licenses a project and hasn't fully considered the range of state water management objectives, it may foreclose future agricultural, municipal, and other consumptive water uses upstream from the licensed project.

As demand increases for Montana's limited water supplies, the role of the state in controlling the allocation and management of this resource becomes more critical. Because of its knowledge of existing water use and water availability, the state is in the best position to exercise water management authority, but is frustrated by asserted federal preemption of this authority in regard to FERC hydropower licensing. Therefore, the state wishes to: (1) assure that FERC licensing and relicensing decisions are consistent with state resource management decisions, including the appropriation of water, the siting of hydropower and associated facilities, protection of fish and wildlife, and maintenance of water quality; (2) maximize

state influence on hydropower development in Montana while acknowledging a federal interest in coordinating such development throughout the region; (3) assure that FERC decisions comply with Montana's comprehensive water plans; and (4) guarantee that Montana's water rights system is fully considered in FERC decisions regarding water allocation.

STATE WATER PLAN POLICY STATEMENT

Montana must seek to maximize control over the management of its water resources in matters pertaining to the siting of hydropower generating facilities. Water management agencies as well as hydropower producers in Montana should, to the extent possible, pursue development of common positions when dealing with FERC and matters involving changes to the Federal Power Act.

ISSUE AND RECOMMENDATIONS

Issue

FERC decisions on the licensing of hydropower projects fail to reflect Montana's statutory prerogatives concerning the allocation and management of the state's water resources.

Recommendations Adopted by the State Water Plan Advisory Council

A two-pronged approach for dealing with FERC and the federal process for licensing hydropower projects is recommended.

The first recommendation is to work within the federal hydropower licensing system to influence FERC decisions on the siting and operation of hydropower projects in Montana. This recommendation would entail a state consultation process that includes all concerned agencies and groups, and the hydropower developers. Under this process, applicants for a federal hydropower license would be advised of all state requirements regarding fish and wildlife effects, water quality certification, environmental impacts, water use permits, facility siting, and state water management goals. In addition, the consultation process would facilitate the project's review by state agencies and minimize the conflicts when the application is submitted to FERC. Under this process, holders of existing hydropower licenses and other interested agencies and groups could also seek mutually acceptable means of resolving problems surrounding current operating facilities. Key among the issues that might be involved are fishery enhancement or upstream water development.

Through this approach, state agencies and the hydropower producers would work on the issues surrounding a project and the means to resolve any problems. In turn, it is expected that FERC would accept the conclusions of the Montana consultation process and condition the license accordingly. The process would be defined under the state water plan as the comprehensive analysis that will be submitted to FERC for consideration as required under the Electric Consumer's Protection Act. Each analysis could also be used for interventions in federal hydropower licensing proceedings.

The second recommendation is to pursue statutory changes to the federal hydropower licensing system to maximize state-level control over the allocation and management of Montana's waters. This would largely focus on amending the Federal Power Act . Potential amendments would: assure consultation of state agencies charged with energy facility siting; allow states to collect fees from hydropower license applicants in order to study the impacts of proposed projects; require FERC to defer to state water plans, unless there is an overriding national interest; ensure fish and wildlife protections as provided by the Electric Consumer's Protection Act are sustained; make compliance with state water law a condition of a federal hydropower license; and provide that a water right for a hydropower project can be obtained only in accordance with state law. Another proposed amendment would abolish or limit FERC's authority to license hydropower projects and correspondingly increase state-level authority.

As a final element of this option, the state would seek to change the federal licensing system by supporting litigation that has the potential to overturn the First Iowa decision of the U.S. Supreme Court.

Preliminary Recommendations Deleted by the State Water Plan Advisory Council

None of the preliminary recommendations in this plan section were deleted by the State Water Plan Advisory Council.

PLAN IMPLEMENTATION

Legislative Action

No state legislative action is required.

Administrative Action

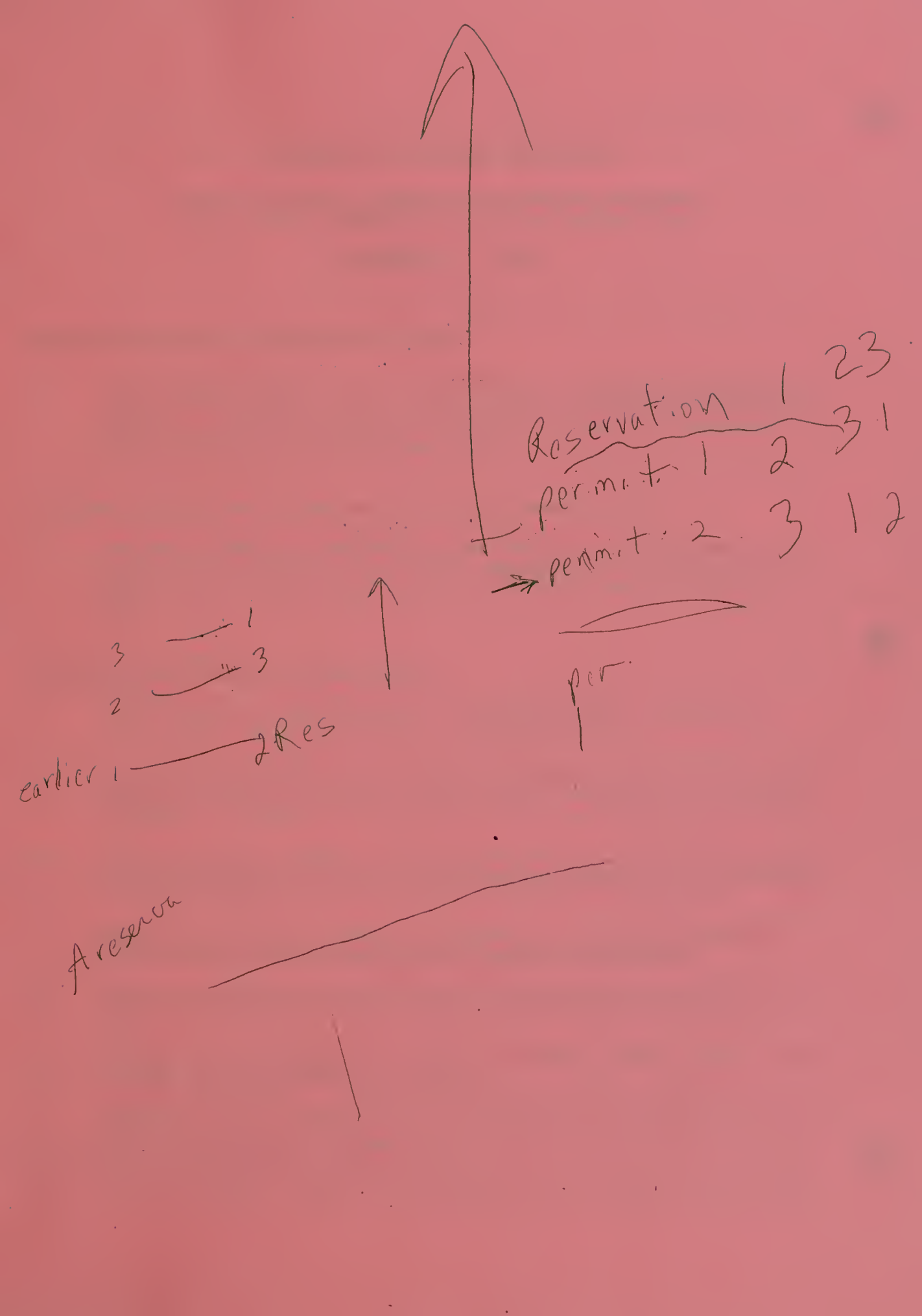
A hydropower coordinating committee will be established to facilitate the recommended consultation process, and to develop and review proposals to amend the Federal Power Act or overturn the First Iowa decision. The committee will be composed of representatives of water management agencies, hydropower producers, and key public interest groups.

Financial Requirements and Funding Strategies

It is anticipated that the proposed administrative actions can be accommodated under current-level funding for the state water planning program. If new, detailed information is needed to intervene in a federal licensing proceeding, additional costs might be incurred.

Time Schedule

	Activity	Responsibility	Deadline
A.	Development and Implementation Tasks		
	1. Establish coordinating committee (CC)	DNRC	March 1989
	2. Develop state consultation process	DNRC and CC	June 1989
	3. Define SWP process to analyze proposed hydropower projects	DNRC	September 1989
B.	Ongoing Tasks		
	1. Monitor FERC licensing activities	DNRC	
	2. Intervene in FERC licensing proceedings	DNRC and CC	
	3. Promote negotiations with appropriate hydropower licensees	DNRC	
	4. Review proposed amendments to FPA for adequacy	DNRC	
	5. Monitor congressional actions relating to FERC	DNRC	
	6. Monitor all litigation related to FERC and state water management	DNRC	


Reservation 1 2 3
permit: 1 2 3 1
permit: 2 3 1 2
3 1
2 3
earlier 1 2Res
per
Aresercu

A SUMMARY OF PUBLIC TESTIMONY

At the Billings, Missoula and Helena Hearings
On Revised Drafts of the State Water Plan

December 15, 1988

Water Information Management System

1. Plan recommendations were supported. Specific procedures for quality control and uniform data collection methods are needed. Priority should be given to manage information within heavily appropriated basins.

Federal Hydropower Licensing and State Water Rights

1. Any new authority assumed by the state for hydropower licensing should not be at the expense of fish and wildlife protections created by the Electric Consumers Protection Act.

Agricultural Water Use Efficiency

1. Plan appears to assume that everyone benefits from more irrigation; that assumption is questionable.

2. Rather that expanding irrigated acreage, emphasis should be placed on doing a better job of water management on acres already irrigated.

3. Irrigation Efficiency studies should also include municipal and industrial water uses and results should be implemented in four years.

4. Supports continued educátion/research on the effects of return flow from increased irrigation efficiency.

5. Supports technical and financial assistance from ASCS and SCS.

6. Agricultural efficiency is not a panacea; could just result in more water leaving the state.

7. Mandatory water efficiency standards would be devastating to agriculture at this time.

8. Section should adopt wording that allows saved or salvaged

water to be available for use under the lease-for-instream-flow plan.

9. Providing information to irrigators strongly supported.

10. Salvage concept strongly supported.

11. Pick-Sloan Resolution supported.

12. Pick-Sloan funding should be used for new storage.

13. Many of the recommendations deleted should be restored.

Instream Flow Protection

1. The four deleted recommendations should be reinstated.

2. Failure to reinstate those recommendations would severely handicap the Department of Fish, Wildlife and Parks in managing aquatic environments for the benefit of the public.

3. Failure to restore those recommendations would have an adverse effect on the economy of the state; fishing, hunting, recreation, and tourism are big business.

4. Commend the deletion of the four recommendations.

5. Questions the need to change the reservation process (priority dates). Reservations are different than other water rights and should be treated as such.

6. Leasing concept has merit if it protects all water users as suggested.

7. Research on Return Flow/Instream Flow relationship supported.

8. Supports ability of public entities to be able to object to new water use permits, but on basis of water quality effects only.

9. The recommendation to allow public entities to lease water from willing water right holders for instream flow purpose has our full support and recommendation.

10. The definition of beneficial use should be amended to not include the diversion of the last water in a stream. The value of the water to the aquatic life is surely greater at this point than to the diverter.

11. Reservations should not be subject to subordination to later priority water use permits. Also, reservations should not be subject to subsequent review.

12. Dilution of effluent should be a basis for objecting to new water use permits. Municipalities and industries have a direct economic stake in instream flow levels.

13. Emergency leasing recommendation should be retained. There may be situations that can't be anticipated through establishment of a long term lease.

14. Can't understand the basis for opposition to purchase and lease of water rights for instream flow by the agricultural community. This option can only benefit farmers and ranchers economically.

15. Issuance of permits in over-appropriated basins should stop.

16. New economic forces at work bringing significant recreational dollars into the state. A recent study pegged the value of Montana's fishery at $122 million annually and that anglers would be willing to pay an additional $215 million for the opportunity to fish in Montana.

17. The leasing option is not as good a solution to enhance instream flow as the purchase option. Instream flow should not be treated as a second class citizen. It should be given the same consideration and respect as all other uses.

18. Leasing and purchase option should be extended to private entities. Legislative review of the expenditure of private funds will create fund raising problems and make the lease/purchase option more centralized and speculative.

19. No one wants to confiscate another individual's water, but there is only so much available. It has to come from somewhere to meet instream flow needs. The leasing program is a good way to make that happen as painlessly as possible.

20. Selling water rights for instream flow use could have substantial impacts on local government revenues.

21. The leasing option may be voluntary for the lessor and the lessee, but it is not voluntary and will be expensive for the objector.

22. Instream flow advocates should cooperate with irrigation project operators to develop the resources of these projects to the advantage of the fishery.

23. Transferring 100% of a water right for instream flow should not be allowed.

24. Ninety-five percent of the agricultural community is opposed to the transfer of water rights to instream flow. If it is to be allowed at all, it should be on a small, experimental

scale first, not statewide.

25. Measuring devices should be required for all instream flow leases.

General

1. State Water Plan should remedy the past mistakes of over-allocation and illegal water use.

2. If the plan is based on an outdated value system designed to benefit a single interest group, you can expect to redo the plan soon.

3. There is opposition against any effort to prioritize between water uses.

4. Existing water reservations should not be affected by the plan.

5. Public health aspects of water management should be given the highest priority in the plan.

6. Planning process should assume a higher profile. Public meetings should be advertised.

7. The planning process should include education programs on water use and law.

8. Future issues should include new storage, groundwater contamination and conservation, and drought management.

9. Change in our water use is inevitable; it can be accomplished in the spirit of cooperation or in spite of tremendous resistance and conflict. The former course is the better one.

10. The priorities of the plan are out of line. Water storage, and trying to make it less expensive, should be the highest priority.

11. The value of water for instream flow is minute compared to the value of food for eating.

12. The SWPAC is admonished to use the utmost discretion when considering action that may take water out of agriculture. Montana agriculture feeds the world.

13. The planning process should be extended two years on the instream flow issue.

14. Better public involvement in the planning process would result if the public was better informed of the plan topics in advance.

15. DNRC is commended for initiating this high profile planning process and for recognizing the value of water for all uses. The challenge is for all users to leave their guns at home and work together.

WRITTEN COMMENT ON THE REVISED
SECTIONS OF THE STATE WATER PLAN

-A SUMMARY-

December 15, 1988

WATER PLANNING PROCESS

1. The plan is silent on the matter of public health and domestic water use. These matters should be addressed in a specific section of the plan. Municipal use should be the highest priority use.

2. When considering the concerns of municipalities, the plan must look 50+ years in the future.

3. The planning process must proceed slowly to assure that it does not become short sighted.

4. The extension of time to undertake the planning process is entirely appropriate. However, there were some procedural problems that also hindered the process.

5. The TAC's should not be adversarial in nature. They should present ideas for consideration by the SWPAC.

6. The SWPAC should not seek to reach decisions by consensus. If only one member objects to a recommendation, it will be rejected. With a vote it might have remained in the plan.

7. The planning process is moving too fast. People have not been allowed sufficient time to comment on the revised plan sections. (II) *

8. Plan sections proving to be controversial following the public informational meetings should be reconsidered by the TAC's. Revised TAC recommendations could then go to the SWPAC and formal hearings or another round of meetings. The revised agricultural water use efficiency section should have gone through another TAC review.

9. The agricultural water use efficiency and instream flow plan sections were controversial. Shouldn't they be subject to a two year review as recommended by the SWPAC?

* The parenthetical Roman numbers indicate the number of times that a particular comment was noted.

10. As an administrative agency initiative, the state water plan should be reviewed by the new administration before being approved by the SWPAC. This is especially the case with the "new" Board of Natural Resources and Conservation.

INSTREAM FLOW PROTECTION

1. The water adjudication should be completed before proceeding with any water leasing program. (II)

2. The law should not be revised so as to allow objections to the issuance of new water use permits on the basis of public health. (IV)

3. The development of offstream storage is vital to the protection of instream resources. (II)

4. Permanently transferring water rights to instream purposes is preferable to a leasing option. (IX)

5. Deletion of the interbasin transfer study proposal is good.

6. Public entities should be allowed to object to the issuance of new water use permits on the basis of effects to fish, wildlife and recreational resources. (IIII)

7. The recommendation concerning a base priority date for reservations makes good sense.

8. Over appropriation is a fact of life in Montana and cannot be tolerated. Montana's streams must be assured a minimum stream flow for fish and wildlife needs. If necessary, water rights for offstream uses should be rescinded.

9. The recommendations deleted from the initial draft of this plan section should be reinstated. (II)

10. This section of the plan has been "gutted". It is time for the people of the state to recognize the value of fish and wildlife to Montana's economy. (V)

11. The SWPAC has overreacted to the comment on the first drafts of the plan sections. Many commentors incorrectly believed that their water rights would be threatened by the original plan proposal. The SWPAC should react to legitimate concern. (VI)

12. The only way to protect our precious instream resources is to allow the purchase, lease, and contribution of offstream water rights for instream use. Such actions must be augmented by proper water right administration. (II)

13. Private entities should be allowed to purchase or lease offstream water rights for instream purposes. This allows for greater funding opportunities. (V)

14. The fact that so many of the initial recommendations in this plan section have been deleted would somewhat indicate support for the development of one resource at the expense of another.

15. If this plan section is to be meaningful, it must contain all the relevant items. The current version of this plan section does not meet this test since so many plan sections were deleted. (II)

16. Many of those submitting letters on the first draft of the plan were concerned about instream flow. Since many changes were made on this plan section, it would appear that DNRC wishes to push this issue rather than such important matters as water storage.

17. Instream water reservations should not be subordinated to intervening water use permits; it reduces instream rights to a second class right. (II)

18. The state must move aggressively in establishing minimum flows on many Montana streams.

19. The 50 percent cap on instream water reservations must be deleted. There is no scientific basis for its existence. (II)

20. Water transfers/marketing should be welcomed as a new source of income for offstream water users. An exciting way to accomplish an important social good.

21. The private purchase of offstream water rights for instream purposes may be a way to reduce unrestricted public access to private lands. A private group may wish to recoup its costs by charging anglers to use the river reach that is improved by a water right transfer.

22. The use of water storage to deal with instream flow problems is everyone's catch-all solution that has considerable direct and indirect costs.

23. Despite written comment supporting instream flow protection, the current plan recommendations overwhelmingly support offstream uses.

24. This plan section must be careful to not convey the impression that Montana's statutory water policies deal solely with instream flow protection.

25. The SWPAC should not support a recommendation providing for the objecting to new water use permits on the basis of public health impacts. Other remedies are already available. The water reservation system, for example, was intended to deal with such matters. Municipalities also have the ability to condemn rights under Montana water law.

26. The Board review of water reservations is essential to the long-term best interests of a basin. Reservations are the result of a planning process and represent long-term public policy decisions. Flexibility in any such planning process is essential. Decisions should not be cast in concrete.

27. Although recognized in this plan section, alternatives to water right transfers (e.g. storage, groundwater development, interbasin transfers) should be more prominently stressed.

28. The plan section should be more specific about the nature, frequency, and extent of the problems we face in Montana regarding "threatened" instream resources.

29. The use of water right transfers should be limited to "certain specified low-flow periods" rather than during "certain years."

30. The fact that a lease invokes a change proceeding should be explicit in the plan.

31. Stream reaches requiring protection should be explicitly identified and addressed accordingly.

AGRICULTURAL WATER USE EFFICIENCY

1. It should be possible to use water salvaged through conservation measures for helping to enhance instream flows.

2. The revised recommendations are largely ineffectual; the original recommendations should be readopted. (II)

3. Education and adequate funding for irrigation efficiency measures are essential if we are to realize needed improvements in irrigation efficiency.

4. Improved water use efficiency will benefit all users--offstream and instream alike. Thus, all users should share in the cost of implementing needed efficiency measures. (II)

5. The SWPAC should reinstate the deleted recommendations on: publicizing the ways rights are transferred; allowing the

transfer of offstream rights to instream rights; allowing emergency transfer of offstream rights for instream use.

6. The deleted recommendation on adopting rules regarding the enforcement of the waste statute is particularly interesting; if offstream users are truly interested in solving our instream flow problems they should not oppose this recommendation.

7. More information is needed on return flows in order to understand agriculture's role in water use.

8. Alternative sources of water such as storage and groundwater development should be considered as a more efficient water supply than conservation.

9. Water users salvaging water through efficiency measures should retain the right to the use of that water.

10. Under the "Administrative Action" portion of this section, the report that evaluates research and education programs should more appropriately go to the Water Policy Committee.

FEDERAL HYDROPOWER LICENSING

1. Actions of the Northwest Power Planning Council should be closely monitored.

2. The state must not jeopardize the protection afforded fish and wildlife resources under the federal Electric Consumers Protection Act.

3. The hydropower problem is non-existent and resides solely in the minds of the DNRC staff. Therefore, all but the first recommendation should be deleted.

4. This plan section is based on a faulty assumption. In reality, a hydropower project may not proceed without a valid state water right.

5. Unified consultation in the federal hydropower licensing process is essential, as is emphasizing measures that are within the state's control.

6. Perhaps water rights for hydropower projects could be tiered. One part, a fixed right (for certainty) and the other a variable component (for reallocation to future higher and better uses).

7. The state does not have the financial resources to properly implement the recommendations of this section. (II)

8. This plan section represents the sort of critical action that is needed to protect Montana's interests in its waters.

WATER INFORMATION

1. The NRIS water information system must be sustained in its current form -- as recommended by the SWPAC.

2. Water data section should be expanded to a new plan section that involves the use of available data to identify drought-prone basins and the means to mitigate drought impacts.

THE STATE WATER PLAN ADVISORY COUNCIL'S RESPONSE TO THE PUBLIC TESTIMONY

At its December 15, 1988 meeting, the State Water Plan Advisory Council considered the testimony given at the three public hearings and made final recommendations on the first four sections of the state water plan. Most of the council members attended at least one of the public hearings, and several members attended more than one of the hearings.

The council recommended that the water information and hydropower licensing plan sections be adopted without modification (i.e. as they read in the "revised plan sections").

The council also recommended that the instream flow protection and agricultural water use efficiency plan sections be adopted with the following modifications.

Instream Flow Protection Plan Section

1. Allow persons with a valid water right or a water quality discharge permit to object to new water use permits and changes of water rights on the basis of potential adverse effects on either public health or water quality. Any group or individual objecting would assume the burden to show how and why the proposed permit would adversely affect public health or water quality.

2. Allow the Department of Fish, Wildlife and Parks to lease offstream water rights in emergency situations without going through the entire change of use proceeding, provided that this can be done without adversely affecting existing water rights and users.

3. Include a disclaimer in the instream flow leasing bill to the affect that, if legal opportunities exist to acquire water rights for instream flow purposes in addition to the leasing and reservation programs, the bill would not affect those opportunities.

Agricultural Water Use Efficiency Plan Sections

1. Allow the Department of Fish, Wildlife and Parks to purchase salvaged water for instream flow purposes, provided that they contribute funds toward the conservation of that water.

THE STATE WATER PLAN ADVISORY COUNCIL'S RESPONSE TO THE PUBLIC TESTIMONY

At its December 15, 1988 meeting, the State Water Plan Advisory Council considered the testimony given at the three public hearings and made final recommendations on the first four sections of the state water plan. Most of the council members attended at least one of the public hearings, and several members attended more than one of the hearings.

The council recommended that the water information and hydropower licensing plan sections be adopted without modification (i.e. as they read in the "revised plan sections").

The council also recommended that the instream flow protection and agricultural water use efficiency plan sections be adopted with the following modifications.

Instream Flow Protection Plan Section

1. Establish a base priority date for all reservants at the time the first notice of intent to reserve water is submitted for any given stream reach or river basin (rather than the date the first correct and complete application is received by the department). Once such a notice is submitted, all qualified applicants with an interest in the stream would have the opportunity to prepare and submit applications within a specified time period and receive the same base priority date.

2. Allow persons with a valid water right or a water quality discharge permit to object to new water use permits and changes of water rights on the basis of potential adverse effects on either public health or water quality. Any group or individual objecting would assume the burden to show how and why the proposed permit would adversely affect public health or water quality.

3. Allow only the Department of Fish, Wildlife and Parks to lease water rights from offstream or consumptive uses for purposes of protecting instream flows in important stream reaches (rather than any public entity).

4. Allow the Department of Fish, Wildlife and Parks to lease offstream water rights in emergency situations without going through the entire change of use proceeding, provided that this can be done without adversely affecting existing water rights and users.

5. Include a disclaimer in the instream flow leasing bill to the affect that, if legal opportunities exist to acquire water rights for instream flow purposes in addition to the leasing and reservation programs, the bill would not affect those opportunities.

Agricultural Water Use Efficiency Plan Sections

6. Allow the Department of Fish, Wildlife and Parks to purchase salvaged water for instream flow purposes, provided that they contribute funds toward the conservation of that water.

BOARD OF NATURAL RESOURCES AND CONSERVATION
Executive Summary

Approval of DNRC Adoption of Four
Sections of the State Water Plan

Statement of Issue

The department requests Board approval of the department's adoption of four sections of the state water plan, as required by Section 85-1-203(b), MCA. The four sections are titled Water Information System, Hydropower Licensing and State Water Rights, Agricultural Water Use Efficiency, and Instream Flow Protection.

Brief Background

The department, under the guidance of the Governor-appointed State Water Plan Advisory Council, has undertaken an exhaustive process for developing the four plan sections. This process has involved several meetings of the Council, additional advisory committees created to deal separately with each plan section, meetings with a number of interest groups, nine public meetings attended by over 2,000 people, and three public hearings. The Council's final recommendations following the public hearings are attached.

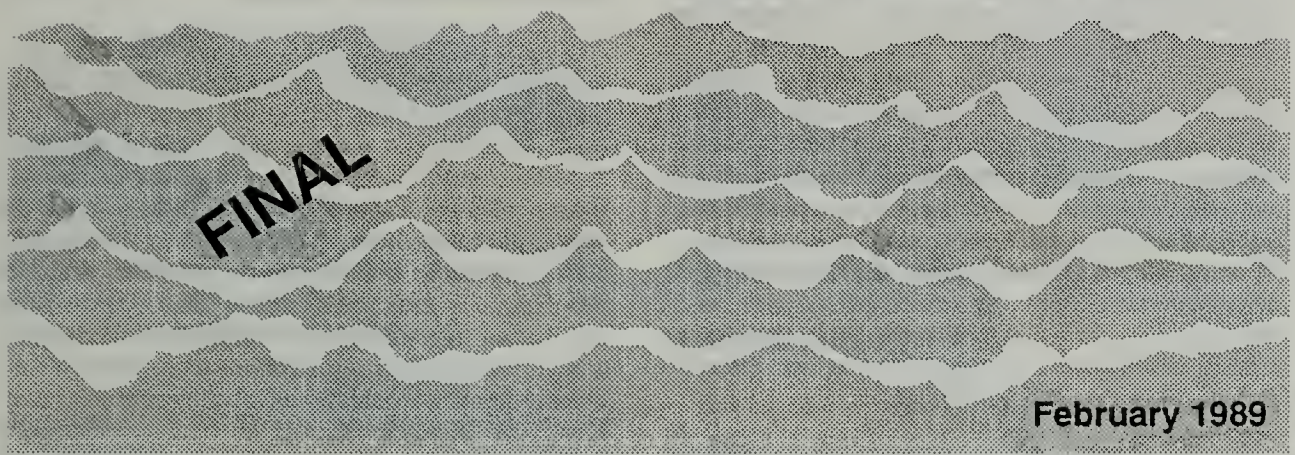
Board Options and Implications

The Board has two options: grant or withhold approval. The Board may approve one or more of the plan sections and not approve other plan sections. If approved, the plan sections become final and will be submitted to the legislature and its Water Policy Committee. Should adoption of any plan sections not be approved, they may be reevaluated and submitted for consideration at a later date.

Department Recommendations

The department has discussed the planning process, the four plan sections, and the Council's final recommendations with Governor Stephens and his staff. Based on these discussions and the Governor's authorization, the department has adopted the four plan sections and recommends Board approval of all four plan sections as adopted. While the adopted plan sections largely reflect the recommendations of the Council, it should be noted that they do not incorporate several of the Council's final recommendations. Final Council recommendations 2, 4, 5, and 6 are not included in the final, adopted plan sections.

MONTANA WATER PLAN
Management Section



Subsection: Water Information System

Introduction 2
Background 2
Policy Statement 3
Issue and Recommendation 3
  Issue 3
  Recommendation 3
Plan Implementation 3
  Legislative Action 3
  Administrative Action 3
  Financial Requirements and Funding Strategies 4
  Time Schedule 5

WATER RESOURCES DIVISION • DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

1520 EAST SIXTH AVENUE • HELENA, MONTANA 59620 - 2301 • (406) 444-6637

INTRODUCTION

Information on the quantity, quality, distribution, and allocation of Montana's water resources provides a foundation for sound planning and management decisions. Under Montana law, the Montana Department of Natural Resources and Conservation (DNRC) has a mandate to "gather from any source reliable information relating to Montana's water resources and prepare therefrom a continuing comprehensive inventory of the water resources of the state (Section 85-1-203(1), MCA). Moreover, DNRC is required "in cooperation with other state agencies, institutions, colleges, and universities to establish and maintain a centralized and efficient water resources data management system sufficient to make available and readily accessible, in a usable format, to state agencies and other interested persons, information on the state's water resources, out-of-state water resources that affect the state, existing and potential uses, and existing and potential demands" (Section 85-2-112(4), MCA).

Since 1986, the DNRC has cooperated with the Natural Resource Information System (NRIS), a program of the Montana State Library, in developing a comprehensive water resources data management system. Known as the Montana Water Information System (MWIS), the system is designed to serve as a clearinghouse for all water data sources and users. Developed under the guidance of representatives from several state and federal water management agencies, MWIS does not duplicate the efforts of these organizations, but coordinates information exchanges among state, federal, and private water users and managers.

BACKGROUND

Given the wide variety of water uses in the state of Montana, it is not surprising that there are several organizations involved in collecting and maintaining many different types of water resource information. DNRC, the Department of State Lands, the Department of Health and Environmental Sciences, and the Department of Fish, Wildlife and Parks all have active programs that involve the collection and use of water quantity or quality data. There is also a vigorous program related to the development of a water rights data system at DNRC. The Statewide Groundwater Information Center located at the Montana Bureau of Mines in Butte serves as a storage and retrieval facility for groundwater data. In Bozeman, the Surface Water Information Center of the Water Resources Center at Montana State University serves as a data repository for water-related research conducted in the university system. On the federal level, agencies such as the U.S. Geological Survey, the Soil Conservation Service, the U. S. Forest Service, the Environmental Protection Agency, the Bureau of Land Management, and the Bureau of Reclamation are active in the water data management area. Finally, there are a number of private-sector consulting firms and resource development companies whose activities often include the collection of water data.

Each organization typically collects water-related information for its own purposes and, for a variety of reasons, this often results in a duplication of efforts. First, there is often a large amount of data being collected and maintained in a variety of formats, ranging from manual systems to extensive computer data bases. In many cases, the structure or content of the data bases may be incompatible, and thus it may be more efficient for an agency to collect new data rather than convert existing data to a format it can use. Second, because there are no standards for collecting and maintaining water-related information, there is often a question as to the reliability and usability of existing data. Finally, it is often more efficient to collect new data than to spend time trying to find out which organization has the needed information.

The Montana Water Information System was developed to help eliminate the duplication of data management efforts and to facilitate access to needed information. The first step in developing the program was to form a Water Resources Data Management System Advisory Committee. Composed of representatives from several state water data collection and management agencies, the committee provided policy guidance in designing a water data management system under the NRIS program. After meeting several times in 1986, the committee concluded that a new, centralized data system that ties all users into a single information base would be too costly to implement, too difficult to design for all uses, and, given the diverse needs of users, too complex for all users to operate. Instead, the Committee recommended developing a central access point to all the various data sources in the state. In other words, the MWIS program does not serve as a central data storage facility, but rather as a means to identify sources of important data and then coordinate access to those sources. This decentralized data base strategy enables each agency to continue managing its data to meet its own specific needs, and allows for maximum sharing of water data among particpating agencies, as well as facilitating centralized data collection for specific issues or basins.

The objectives of the MWIS program are: (1) to determine the water data storage and retrieval needs of Montana data users; (2) to design a water data storage and retrieval system that meets user needs in Montana; (3) to establish

a central point of contact and to coordinate quick and efficient access to existing sources of water information for any particular geographic area of the state; (4) to design and promote a quality control system to ensure the usefulness of the data; and (5) to identify potential and existing duplicative data collection efforts for the purposes of reducing or eliminating such efforts and reducing the resultant costs.

To achieve these objectives, the following activities are currently underway and scheduled for completion by June 1989: (1) developing a data base on water resources information sources in the state; (2) accessing other data bases; (3) designing quality control criteria to ensure the compatability of data management activities; and (4) surveying other state water information management systems. Once these initial activities have been completed, the MWIS program will be maintained and refined as advances in data management technology occur.

STATE WATER PLAN POLICY STATEMENT

A comprehensive water information system is needed to improve the management of Montana's water resources by promoting coordination among water managers and users, as well as eliminating duplication of effort in the collection, storage, and retrieval of water-related information.

ISSUE AND RECOMMENDATION

Issue

The basic issue regarding water data management is: What type of information management system will best meet the needs of water resource decision makers while responding to the legislative mandate for an efficient water data management program?

Recommendation

Sustaining the ongoing MWIS program is recommended as the most appropriate approach to managing Montana's water resource data. This program serves the diverse needs of water data users by providing a central access point to decentralized data bases. It eliminates the duplication of effort by enabling each agency to continue managing its own data to meet its specific needs while allowing for the maximum sharing of water data among participating agencies. The existing program also improves the efficiency and effectiveness of water management activities by identifying and disseminating water-related information in a timely and efficient manner.

MWIS also facilitates the use of such state-of-the art information management technology as a Geographic Information System. Using such a system, information can be assimilated and presented in a variety of formats, from technical reports to maps, as needed in regulatory, management, planning, and research decision making. Given the different needs of various water data users, this type of system is widely recognized as the most efficient and cost-effective approach to developing a comprehensive, integrative water data management system.

PLAN IMPLEMENTATION

Legislative Action

The legislature would not need to revise or adopt legislation to authorize the development of a water data management system. However, it is critical that the legislature provide the financial support needed to maintain, refine, and enhance the existing MWIS program.

Administrative Action

Several administrative actions are necessary to implement the recommended option. These actions are described according to the functions of the MWIS staff and the MWIS Advisory Committee.

A. MWIS Staff

1. Complete the current program activities and produce a report that summarizes the findings;

2. Maintain a central access point to data for water information users;

3. Maintain the staff needed to ensure the proper operation of the MWIS program;

4. Receive direction from the MWIS Advisory Committee whose function is to assist the program staff with the development and operation of the data management program;

5. Seek funding for additional microcomputers (with modems) to accommodate increased public use of MWIS by allowing more than one user to access MWIS at a given time, as well as allowing remote access to the system.

6. Cross-train MWIS, NRIS, and State Library staffs to familiarize them with the various data bases being accessed by MWIS, thus enhancing program capabilities to respond to data requests.

7. Provide training to system users to encourage remote and independent use of MWIS.

8. Develop a system for tracking current and anticipated data collection efforts in Montana to enhance information sharing among data users and to discourage duplication of effort.

B. MWIS Advisory Committee

1. Expand the advisory committee to include experts in Geographic Information System(s) and natural resources management from state and federal agencies;

2. Provide guidance in identifying computer needs, developing data standards, and identifying funding sources for the acquisition of selected types of data;

3. Prioritize what data are needed to meet the most critical water resource issues facing Montana; and

4. Coordinate the development and utilization of new data management tools, such as a Geographic Information System.

Financial Requirements and Funding Strategies

It is estimated that funding in the amount of $100,000 is needed during the 1990-1991 biennium to maintain and further develop the MWIS program. This funding is being sought through four basic approaches:

1. Negotiate interagency agreements to provide specific data management services for compensation, approximately $25,000 was acquired during fiscal years 1988 and 1989 and additional agreements are expected in the future.

2. Apply for grants and seek non-state funding. For the 1990-1991 biennium, NRIS has applied for a Renewable Resources Development Grant of $99,806. Approximately 36 percent of the grant, or $35,930, would be allocated to MWIS. NRIS has also applied for a Water Development Grant of $45,510.

3. Request general funds in the event that grants are not available. Although a request for such funds was not made for the 1990-1991 biennium, the director of the Budget Office has indicated he will consider a late request if grant funding is not obtained.

4. Investigate the feasibility of relying on user fees to partially fund the activities of MWIS.

Time Schedule

	Activity	Responsibility	Deadline
A.	Development and Implementation Tasks		
	1. Design MWIS program	MWIS/Advisory Committee	August 1988
	2. Establish central point of contact	MWIS	September 1988
	3. Expand Advisory Committe Committee	MWIS/Advisory	December 1988
	4. Design quality control criteria	MWIS/Advisory Committee	June 1989
	5. Train State Library and NRIS staff	MWIS	March 1990
	6. Provide on-line and remote access to MWIS	MWIS	October 1990
	7. Train users of MWIS	MWIS	June 1991
	8. Develop system for tracking data collection efforts	MWIS	October 1991
B.	Ongoing Tasks		
	1. Determine water data needs and sources	MWIS/Advisory Committee	
	2. Access data bases	MWIS	
	3. Promote quality control criteria	MWIS	
	4. Coordinate the development and utilization of data management tools	MWIS/Advisory Committee	

MONTANA WATER PLAN
Management Section

FINAL

February 1989

Subsection: Instream Flow Protection

Introduction 2
Background 2
Policy Statement 2
Issues and Recommendations 3
  Issues 3
  Recommendations 3
Plan Implementation 4
  Legislative Action 4
  Administrative Action 4
  Financial Requirements and Funding Strategies 4
  Time Schedule 5

WATER RESOURCES DIVISION • DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

1520 EAST SIXTH AVENUE • HELENA, MONTANA 59620 - 2301 • (406) 444-6637

INTRODUCTION

Water uses may be differentiated on the basis of whether they involve withdrawing water from a source of supply. Offstream uses divert water from a natural watercourse. This withdrawn water is then either used and returned to the watercourse or completely consumed. By contrast, instream uses maintain a specified level of flow in the natural watercourse.

The allocation of water in Montana has traditionally focused on the important task of satisfying offstream uses for domestic and commercial purposes, irrigated agriculture, industry, and mining. While these offstream uses remain critical to the growth and development of the state, there has been an increasing demand to leave water in the stream, unavailable for offstream diversion below a specified level, for fish, wildlife, recreation, and water quality. Montana law (Section 85-1-101(5), MCA) provides that "The water resources of the state must be protected and conserved to assure adequate supplies for public recreational purposes and for the conservation of wildlife and aquatic life." In addition, Section 75-5-101(1), MCA states that "It is the public policy of this state to conserve water by protecting, maintaining, and improving the quality and potability of water for public water supplies, wildlife, fish and aquatic life, agriculture, industry, recreation, and other beneficial uses."

Based on these and other statutory policies, natural resource management agencies are taking steps to protect instream flows through a variety of programs and practices. The purpose of this plan component is to identify the issues involved with maintaining and enhancing instream flows, and to present recommendations for resolving them.

BACKGROUND

In 1969, the state took its first steps to statutorily allocate water for instream use. The Legislature established so-called "Murphy Rights" on the unappropriated waters of twelve "blue ribbon" trout streams to maintain stream flows necessary for the preservation of fish and wildlife habitat (Section 89-801(2), RCM, 1947). In 1973, state efforts were expanded with the enactment of the Montana Water Use Act, which not only provided an opportunity to reserve water for future diversionary and consumptive uses, but also for maintaining instream flows (Section 85-2-316, MCA). To date, instream reservations have been established only in the Yellowstone River Basin. Several other streams have received instream flow protection pursuant to Section 85-2-223, MCA, which allows the Montana Department of Fish, Wildlife and Parks to represent the public in adjudication proceedings for purposes of documenting public recreational uses of water established prior to 1973. Instream flows are also maintained on several streams by releasing water from reservoirs during critical times of the year. Finally, the Department of Natural Resources and Conservation (DNRC) may condition water use permits for large appropriations on the basis of reasonable use criteria which include the protection of instream flows (Section 85-2-311(2)(c), MCA).

In addition to state efforts to protect instream resources, federal agencies and tribal governments have also taken steps to ensure the maintenance of instream flows. The Wild and Scenic Rivers Act (16 U.S.C. 127) has been used to protect instream resources on the North, South, and Middle Forks of the Flathead River, and on one reach of the Missouri River. Federal land management agencies are studying the possibility of adding rivers to the wild and scenic river system, thereby protecting additional instream resources. Through its special use permitting process, the U.S. Forest Service also protects instream flows by regulating access to developers seeking to divert water within the national forests (43 U.S.C. 1761-1771 (1982)). The federal reserved water rights doctrine may give federal resource management agencies and tribal governments another mechanism to manage instream resources. Finally, tribal governments, such as the Confederated Salish and Kootenai Tribes of the Flathead Reservation, are claiming aboriginal fishing rights to protect instream flows under their respective treaties with the United States.

Although the state of Montana has made significant progress in protecting instream flows, some of the existing programs and practices need refinement if they are to be effective. In certain cases, new legal and institutional mechanisms also may be needed to enhance instream resources.

STATE WATER PLAN POLICY STATEMENT

Instream flows are an important use of water, and mechanisms should be developed and refined to protect and enhance instream resources. However, instream flow protection activities must not adversely affect existing water rights and should be weighed and balanced against alternative future uses of water.

ISSUES AND RECOMMENDATIONS

Issues

Four issues need to be addressed with respect to instream flow protection. They are:

1. Inadequate consideration of instream flow values in the water use permitting process.
2. Insecurity of instream water reservations.
3. Need for enhancement of instream resources in dewatered basins.
4. Need for research on instream resource management decisions.

Recommendations

1. Permitting Process

The existing criteria for issuing a water use permit, as outlined in Section 85-2-311, MCA, may not adequately provide for the consideration of instream flow values. It is not clear whether the water permitting process allows for the consideration of instream flow values other than when instream flow water rights have been established. To date, many streams in Montana with important instream values do not have the necessary protection of an instream flow right. Water permits for new consumptive use continue to be granted before instream flow rights are established. Consequently, in certain areas of Montana, instream resources are subjected to further depletions.

The recommended solution to this issue is to promote more timely acquisition of instream flow reservations by assigning a priority date at the time a qualified applicant submits a notice of intent to reserve water (instead of several years later when final reservation decisions are made). Under this approach a "base" priority date would also be established for all reservants at the time the first notice is submitted for any given stream reach or river basin. Once such a notice is submitted, all qualified applicants with an interest in the stream (including those needing water for offstream purposes) would have the opportunity to prepare and submit applications within a specified time period and receive the same base priority date. In making its final decision on the applications, the Board of Natural Resources and Conservation (BNRC) would also weigh and balance the reservation requests against water use permits granted since the base priority date. The BNRC could subordinate reservations to water use permits if the purpose of the reservations is not substantially impaired.

2. Security Of Instream Reservations

The current reservation process may not provide adequate security to instream reservations. If the BNRC finds that the total amount of an instream flow reservation is not needed to fulfill its purpose, and a qualified applicant can show that its need outweighs the need of the instream reservation holder, the excess water may be reallocated to the competing applicant (Section 85-2-316(11), MCA). Such actions may not occur more than once every five years. Moreover, all reservations are to be reviewed at least once every ten years, and if the objectives of the reservation are not being met, the Board may extend, revoke, or modify the reservation (Section 85-2-311(10), MCA).

The recommended solution to this issue is to evaluate the relative security of instream flow reservations after the BNRC completes its review of the Yellowstone River reservations in 1989. This strategy is recommended because it is difficult to evaluate the security of instream reservations, and thus determine what action is needed, without first going through the process of making a ten-year review. The evaluation would identify and assess all the problems associated with the security of instream reservations.

3. Enhancing Instream Flows

Instream resources are often threatened in streams that are subject to regular or periodic low flow conditions. The issue here is not how to maintain existing flow levels, but how to increase or enhance the flow levels in certain streams.

The first recommendation to address this issue is to allow the Department of Fish, Wildlife and Parks to lease water rights from offstream or consumptive uses for purposes of protecting instream flows in important stream reaches. This opportunity is entirely voluntary and would not jeopardize existing offstream water rights. It would result in the temporary transfer of an offstream water right to enhance instream flows during critical low flow periods. Under the lease agreement, the offstream water user would still hold the water right and be compensated for leaving water in the stream during certain years. This recommendation would also allow for the temporary emergency leasing of offstream or stored water rights to protect instream resources during critical low flow periods. Leases under this approach could not occur if they would result in adverse effects to existing water users.

A second recommendation is to support public entities in purchasing or leasing water stored in reservoirs above dewatered streams and in revising the operating procedures on such reservoirs. In addition, the feasibility of new storage projects to enhance instream resources should be assessed. Finally, cooperative solutions at the local level, such as irrigation scheduling, are supported.

4. Research

To improve the management of instream resources, research is needed to evaluate:

a. The effect of return flows on the maintenance and enhancement of instream resources.

b. Instream flow quantification methods to determine if existing methods result in an inappropriate amount of water for instream resources.

c. The physical availability of water to meet the demands for instream resource protection.

PLAN IMPLEMENTATION

Legislative Action

The legislature would have to revise Section 85-2-316(9), MCA to allow the BNRC to establish a base priority date for all reservants at the time the first notice of intent to apply for a water reservation is submitted for a particular stream reach; to define the time limit within which competing applications must be submitted; and to allow the Board to subordinate reservations to water use permits granted since the base priority date.

The legislature would also have to enact a statute to allow the voluntary leasing of water from offstream uses to instream uses. Some of the statutory modifications that may be needed include changing the definition of "appropriate" in Section 85-2-102(1), MCA and clarifying the change statute in Section 85-2-402(2)(b), MCA. It may also require a modification or clarification in the abandonment statute in Section 85-2-404, MCA.

Administrative Action

To determine the relative security of instream flow reservations, the DNRC will, in cooperation with the Instream Flow Technical Advisory Committee, evaluate both the five-year and ten-year review processes after the BNRC completes the Yellowstone River reservation review. The DNRC will prepare a brief report for the State Water Plan Advisory Council (SWPAC) outlining the options and recommendations for addressing this problem.

To facilitate research on the three areas outlined above, the DNRC will work in cooperation with the Water Resources Research Center (WRRC) at Montana State University. The focus of this cooperative effort will be: (1) to identify leading researchers in the topic areas; (2) to survey the current state of research in each of the areas; (3) to consult with resource management agencies and water users to identify research needs; and (4) to outline research strategies, including financial requirements and sources of funding. Research proposals in these three areas will receive a high priority by the Research Center for funding. Periodical "progress reports" will be made to the SWPAC.

To assess the feasibility of new storage projects to enhance instream flows in dewatered basins, this issue should be incorporated into a state water plan section devoted exclusively to water storage projects.

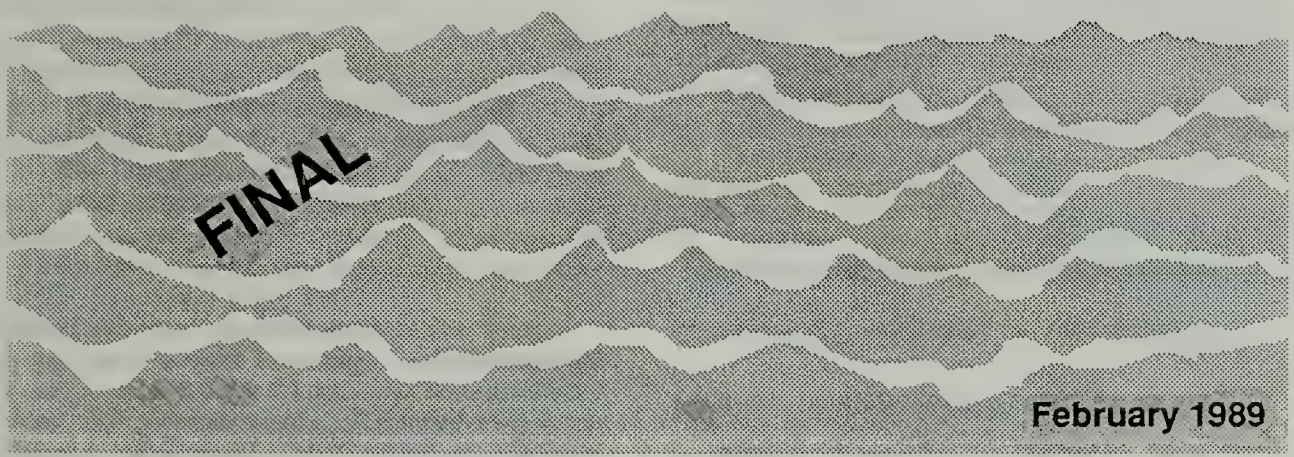
Financial Requirements and Funding Strategies

Funding may be necessary to conduct research on the three areas outlined above. Periodic progress reports to the SWPAC will outline the financial requirements and funding strategies for research.

Time Schedule

Activity	Responsibility	Deadline
A. Development and Implementation Tasks		
1. Draft legislation	DNRC	January 1989
2. Enact legislation	Legislature	April 1989
3. Evaluate security of instream reservations	DNRC	June 1989
B. Ongoing Tasks		
1. Reservoir management and cooperative solutions	DFWP, DNRC, others	
2. Research	DNRC, WRRC	

MONTANA WATER PLAN
Management Section



Subsection: Agricultural Water Use Efficiency

Introduction 2
Background 2
Policy Statement 3
Issues and Recommendations 3
  Issues 3
  Recommendations 3
Plan Implementation 3
  Legislative Action 3
  Administrative Action 4
  Financial Requirements and Funding Strategies 4
  Time Schedule 4

WATER RESOURCES DIVISION • DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

1520 EAST SIXTH AVENUE • HELENA, MONTANA 59620 - 2301 • (406) 444-6637

INTRODUCTION

Agriculture is Montana's largest business, providing about one-third of the total state income from primary industries. Irrigation contributes roughly one-quarter of agricultural income and, importantly, stabilizes agricultural production during the all-too-frequent dry years. Satisfying agriculture's vital demand for irrigation water requires the development and extension of water supplies through a combination of management strategies, including water storage. Another method is to improve the efficiency with which water is used.

The benefits of improved agricultural water use efficiency are diverse and include:

1. Improved ability to withstand periods of drought.
2. Increased irrigated acreage through the use of saved water.
3. Improved performance of aging irrigation facilities.
4. Increased irrigators' profits when the benefits of more efficient water use (increased crop production and sometimes decreased operating costs) are greater than the investment cost.
5. Reduced soil erosion and improved water quality.
6. Help in meeting the needs of current water users once the prior reserved rights of Indian tribes and the federal government are quantified and put to use.

Along with these benefits, improving water use efficiency may be important in terms of interstate water allocation. The U.S. Supreme Court has indicated that state conservation efforts will be considered if it is called upon to divide the waters of interstate rivers. The Court could decide to award smaller shares to states making no effort to increase water use efficiency, reasoning that these states could meet their future needs by saving more water.

BACKGROUND

Any strategy to improve agricultural water use efficiency must reflect an appreciation of several difficulties. First, because each irrigation situation is different, improving water use efficiency requires a case-by-case consideration of a number of complex geologic, hydrologic, and economic factors. Second, irrigation efficiency improvements can be very expensive. Third, water uses within a basin can be extremely interdependent. One irrigator's return flows or recharge to ground water can be another irrigator's water supply. Therefore, improving the efficiency of one water user could adversely affect the water supply of others. Fourth, while Montana law protects water users from adverse effects caused by other people's changes in water use, the law does not clearly establish who owns the right to water saved without adverse effects to others.

A number of options are already available to overcome some of these problems. The Montana Cooperative Extension Service, local conservation districts, and a number of other state and federal agencies provide technical assistance and information on water conservation measures. The Montana University System also supports research to improve our understanding of the complex factors that affect irrigation efficiency. Research may also help develop improved irrigation practices and technologies.

Funding assistance is available for irrigation efficiency improvements from a number of sources. These sources include the U. S. Agricultural Stabilization and Conservation Service, Farmers Home Administration, Soil Conservation Service, and the Montana Water Development Program administered by the Department of Natural Resources and Conservation (DNRC).

Given that one irrigator's water losses can be another irrigator's water supply, improvements in water use efficiency may adversely affect some water users. In light of this, the law provides potentially affected parties the right to object to certain changes in water use. Accordingly, the objective of increased water use efficiency is not to reduce the amount of water that is later reused. Rather, it is to decrease losses such as: (1) water used by weeds or other unwanted vegetation; (2) evaporation of standing water; (3) water that is not consumed but becomes inaccessible for reuse; or (4) water that becomes unusable because its quality has deteriorated.

The final difficulty stems from the fact that our water law is not clear on the question of who holds the right to salvaged water. In Montana, water rights are based on the amount of water historically put to beneficial use. If an irrigator decreases his use over time because of improved efficiencies, the legal status of the water no longer needed can be called into question. By one interpretation, this part of the water right would be considered abandoned and the water would go to the next junior user. Obviously, this would not encourage increased efficiency. Under a second interpretation, an irrigator who increases his efficiency retains the right to the salvaged water, so long as other water users would not be adversely affected by the change in water use. The irrigator may then have the option to expand

his irrigated acreage, sell, or otherwise benefit from the right to the salvaged water. Using this interpretation, an irrigator may be rewarded, rather than penalized, for becoming more efficient.

STATE WATER PLAN POLICY STATEMENT

Voluntary improvements in agricultural water use efficiency that expand water supplies for agriculture and other uses should be encouraged. Where improvements in water use would adversely affect other existing beneficial uses, such improvements should not be allowed.

ISSUES AND RECOMMENDATIONS

Issues

To encourage voluntary improvements in agricultural water use efficiency, three groups of issues must be successfully addressed.

1. Adequate information and educational opportunities must be readily available to irrigators, and research must be continued. How difficult is it for irrigators to obtain this information? Is it presented in a manner that is clear and persuasive? Are there adequate data for evaluating applications for water right changes in terms of adverse effects upon other water users? Is improving irrigation technologies and practices receiving adequate priority in the competition for agricultural research dollars?

2. Funding assistance may be necessary for those wishing to improve irrigation efficiency. Are existing programs capable of meeting future demands for funding? Are the kinds and levels of support adequate? Should the state Water Development Program give special consideration to irrigation efficiency-improving proposals? Are other sources of funding available, particularly for the rehabilitation and betterment of aging irrigation projects?

3. Laws clarifying who owns the right to salvaged water must be enacted to provide clear incentives for more efficient use. But when an irrigator increases efficiency, how will the amount of water salvaged be determined? Will it include water that otherwise would have been return flows? How will other water users be protected from adverse effects? Should restrictions be placed on how the saved water can be used?

Recommendations

In response to these issues, the following recommendations have been adopted:

1. The adequacy and effectiveness of existing information and research programs should be evaluated. Information should be provided to the state's irrigation districts and other organized irrigation associations on the availability of technical and financial assistance for improving irrigation efficiency. Further, these entities should be informed of their option under state law for the use of salvaged water.

2. Support for federal programs providing financial and other local level assistance to irrigators should be maintained. Special consideration should be given in the state Water Development Program for projects that would improve the efficiency of existing irrigation systems. Funds from the federal Pick-Sloan Missouri Basin Program should be allocated for use in the rehabilitation and betterment of irrigation projects.

3. The law should clearly provide that if an irrigator salvages water, he maintains the right to use the water. However, salvaged water must be defined to include only water that has not been available for reuse by other water users.

PLAN IMPLEMENTATION

Legislative Action

To provide effective financial support, the legislature should adopt a resolution urging Congress to authorize and appropriate funds from the Pick-Sloan Missouri Basin Program for the rehabilitation of irrigation projects. Such funding can be justified as compensation for water development projects promised to Montana under the 1944 Flood Control Act, but never received.

Legislation also should be passed that clarifies the rights of water users to salvaged water. Such legislation should carefully define "salvaged water" to include only the saved water that otherwise would have become consumed or unusable for other existing appropriators. The use of salvaged water for a different purpose, in a different place, from a different point of diversion, or from a different source of storage would require a change in water right in accordance with Montana law.

Administrative Action

To improve education and research on irrigation efficiency, the DNRC, in cooperation with the Montana Cooperative Extension Service and the U.S. Soil Conservation Service, should evaluate the effectiveness of existing research and public education programs. A report should be prepared to the State Water Plan Advisory Council that sets forth recommendations for any improvements in these programs.

The state's irrigation districts and other organized agricultural water user groups should be informed of available technical and financial assistance for improving irrigation efficiency. They should also be informed of the opportunity to use salvaged water if the legislation recommended above is enacted.

To assure continued federal government support for improving agricultural water use efficiency, the DNRC should continue to monitor and support federal funding for programs or projects that improve agricultural water use. In addition, the Water Development Program should give special consideration to project proposals that improve the efficiency of existing irrigation projects. The Governor's Office and the DNRC should also pursue all administrative and intergovernmental channels available to obtain Pick-Sloan funding for irrigation project rehabilitation.

Financial Requirements and Funding Strategies

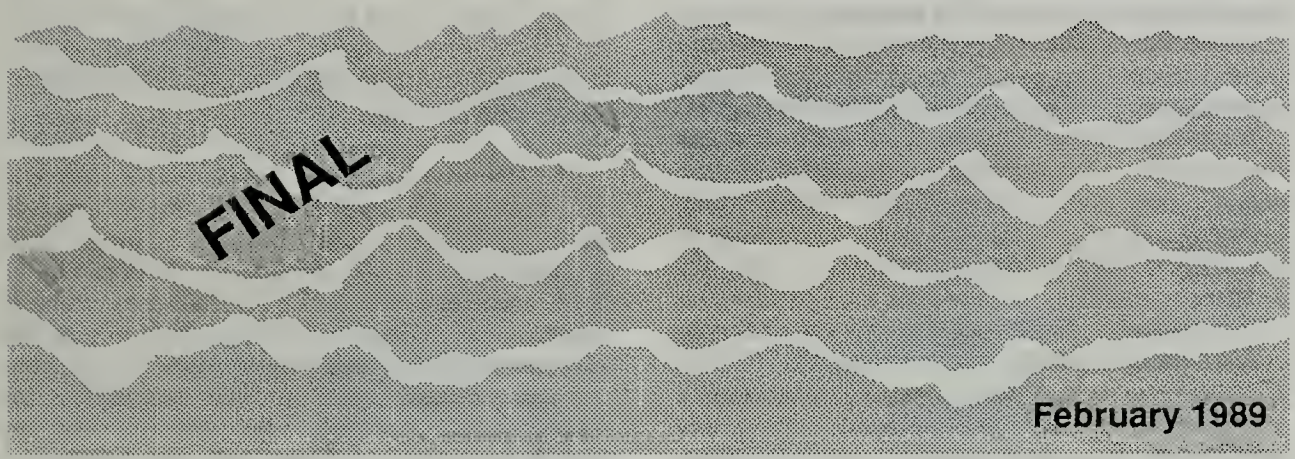
It is anticipated that the administrative actions can be accomplished with current levels of funding.

Time Schedule

Activity	Responsibility	Deadline
A. Development and Implementation Tasks		
1. Draft Legislation	DNRC	January 1989
2. Enact Legislation	Legislature	April 1989
3. Contact irrigation districts and water users' associations	DNRC	May 1989
4. Complete evaluation report on irrigation efficiency information and research	DNRC	September 1989
B. Ongoing Tasks		
1. Rank irrigation efficiency project proposals to the Water Development Program	DNRC	
2. Monitor and support federal funding, including Pick-Sloan Program Funding	DNRC/Governor's Office	

MONTANA WATER PLAN

Management Section



Subsection: Federal Hydropower Licensing and State Water Rights

Introduction 2
Background 2
Policy Statement 3
Issue and Recommendations 3
  Issue 3
  Recommendations 3
Plan Implementation 4
  Legislative Action 4
  Administrative Action 4
  Financial Requirements and Funding Strategies 4
  Time Schedule 4

WATER RESOURCES DIVISION • DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

1520 EAST SIXTH AVENUE • HELENA, MONTANA 59620 - 2301 • (406) 444-6637

INTRODUCTION

Since 1920, the Federal Power Act (FPA) (16 USC 791(1982)) has required the Federal Energy Regulatory Commission (FERC) to license any hydropower project that: (1) is located on federal land; (2) uses water impounded by a federal dam; (3) is located in, or uses water from a navigable stream; or (4) produces power which affects interstate commerce. Following the U.S. Supreme Court decision in First Iowa Hydro-Electric Cooperative v. Federal Power Commission, 328 U.S. 152 (1946), FERC is not bound by state laws or policy in determining the number and location of hydropower projects it may license within a state. Not only does FERC's authority to site hydropower dams preempt all state decision-making on the issue, but FERC contends it is not required to consider Montana's water law system of prior appropriation. This relationship between FERC and the state has frustrated the state's attempt to manage its water resources by: (1) not allowing the state to optimize water use when a hydropower project virtually forecloses all future upstream uses; and (2) eroding the state's authority to control the allocation and use of its water.

BACKGROUND

In 1920, when almost one-third of the United States' energy needs were supplied by hydropower, Congress enacted the Federal Water Power Act in response to fears that the hydropower industry could be concentrated in the hands of a few major power companies. The law was amended in 1935 to become the Federal Power Act (FPA) and is administered by the Federal Energy Regulatory Commission. In passing the FPA, Congress seemed to create a balance between state and federal governments in authorizing hydropower projects. The FPA required a license from FERC, but also provided for the application of state water law. However, in its First Iowa decision, the U.S. Supreme Court held that a hydropower project could be federally licensed even though the applicant was in violation of Iowa laws that required a state permit to build a dam and prohibited the dewatering of a stream. The Court's decision was based on grounds that a state license, as a condition precedent to federal action, would: (1) give the states veto power over projects that Congress intended FERC to regulate; (2) allow the states to control the comprehensive planning that congress entrusted to FERC; (3) result in a duplicate system of federal and state licensing that would be unworkable; and (4) make FERC the agent of the states for purposes of enforcing state laws.

Based on First Iowa and subsequent decisions, FERC's position is clear: an applicant for a federal hydropower license does not have to acquire a state water right prior to issuance of the license. In addition, the license may contain a special article allowing additional time to acquire the state water rights necessary to operate the project. If a federal license is issued, the licensee acquires the federal power of eminent domain and may condemn existing rights to acquire water for the project, provided that the right-holder is compensated. Thus, a FERC licensee can be inserted into the water rights system without ever having to comply with state water laws.

The Montana Constitution provides that all waters in the state are the property of the state for the use of its people and are subject to appropriation as provided by law for all beneficial uses, including hydropower. Since passage of the Montana Water Use Act of 1973, an appropriation of water requires a permit from the Department of Natural Resources and Conservation. Disruption of this appropriation system of water rights is only the most obvious and fundamental effect for FERC's disregard of state policies, procedures, and laws. Under the provisions of the Federal Fish and Wildlife Coordination Act and the Electric Consumers Protection Act, FERC must consult with state and federal fish and wildlife agencies when considering the issuance of a federal license (or exemption from licensing) for a proposed hydropower project. In many instances, this consultation leads to the imposition of minimum instream flow requirements on a project's federal license, often in disregard of state water law. Another problem centers on the fact that some hydropower projects may require a large share of the available flow at a certain point on a river. If FERC licenses a project and hasn't fully considered the range of state water management objectives, it may foreclose future agricultural, municipal, and other consumptive water uses upstream from the licensed project.

As demand increases for Montana's limited water supplies, the role of the state in controlling the allocation and management of this resource becomes more critical. Because of its knowledge of existing water use and water availability, the state is in the best position to exercise water management authority, but is frustrated by asserted federal preemption of this authority in regard to FERC hydropower licensing. Therefore, the state wishes to: (1) assure that FERC licensing and relicensing decisions are consistent with state resource management decisions, including the appropriation of water, the siting of hydropower and associated facilities, protection of fish and wildlife, and maintenance of water quality; (2) maximize

state influence on hydropower development in Montana while acknowledging a federal interest in coordinating such development throughout the region; (3) assure that FERC decisions comply with Montana's comprehensive water plans; and (4) guarantee that Montana's water rights system is fully considered in FERC decisions regarding water allocation.

STATE WATER PLAN POLICY STATEMENT

Montana must seek to maximize control over the management of its water resources in matters pertaining to the siting of hydropower generating facilities. Water management agencies as well as hydropower producers in Montana should, to the extent possible, pursue development of common positions when dealing with FERC and matters involving changes to the Federal Power Act.

ISSUE AND RECOMMENDATIONS

Issue

FERC decisions on the licensing of hydropower projects fail to reflect Montana's statutory prerogatives concerning the allocation and management of the state's water resources.

Recommendations

A two-pronged approach for dealing with FERC and the federal process for licensing hydropower projects is recommended.

The first recommendation is to work within the federal hydropower licensing system to influence FERC decisions on the siting and operation of hydropower projects in Montana. This recommendation would entail a state consultation process that includes all concerned agencies and groups, and the hydropower developers. Under this process, applicants for a federal hydropower license would be advised of all state requirements regarding fish and wildlife effects, water quality certification, environmental impacts, water use permits, facility siting, and state water management goals. In addition, the consultation process would facilitate the project's review by state agencies and minimize the conflicts when the application is submitted to FERC. Under this process, holders of existing hydropower licenses and other interested agencies and groups could also seek mutually acceptable means of resolving problems surrounding current operating facilities. Key among the issues that might be involved are fishery enhancement or upstream water development.

Through this approach, state agencies and the hydropower producers would work on the issues surrounding a project and the means to resolve any problems. In turn, it is expected that FERC would accept the conclusions of the Montana consultation process and condition the license accordingly. The process would be defined under the state water plan as the comprehensive analysis that will be submitted to FERC for consideration as required under the Electric Consumer's Protection Act. Each analysis could also be used for interventions in federal hydropower licensing proceedings.

The second recommendation is to pursue statutory changes to the federal hydropower licensing system to maximize state-level control over the allocation and management of Montana's waters. This would largely focus on amending the Federal Power Act . Potential amendments would: assure consultation of state agencies charged with energy facility siting; allow states to collect fees from hydropower license applicants in order to study the impacts of proposed projects; require FERC to defer to state water plans, unless there is an overriding national interest; ensure fish and wildlife protections as provided by the Electric Consumer's Protection Act are sustained; make compliance with state water law a condition of a federal hydropower license; and provide that a water right for a hydropower project can be obtained only in accordance with state law. Another proposed amendment would abolish or limit FERC's authority to license hydropower projects and correspondingly increase state-level authority.

As a final element of this option, the state would seek to change the federal licensing system by supporting litigation that has the potential to overturn the First Iowa decision of the U.S. Supreme Court.

PLAN IMPLEMENTATION

Legislative Action

No state legislative action is required.

Administrative Action

A hydropower coordinating committee will be established to facilitate the recommended consultation process, and to develop and review proposals to amend the Federal Power Act or overturn the First Iowa decision. The committee will be composed of representatives of water management agencies, hydropower producers, and key public interest groups.

Financial Requirements and Funding Strategies

It is anticipated that the proposed administrative actions can be accommodated under current-level funding for the state water planning program. If new, detailed information is needed to intervene in a federal licensing proceeding, additional costs might be incurred.

Time Schedule

	Activity	Responsibility	Deadline
A.	Development and Implementation Tasks		
	1. Establish coordinating committee (CC)	DNRC	March 1989
	2. Develop state consultation process	DNRC and CC	June 1989
	3. Define SWP process to analyze proposed hydropower projects	DNRC	September 1989
B.	Ongoing Tasks		
	1. Monitor FERC licensing activities	DNRC	
	2. Intervene in FERC licensing proceedings	DNRC and CC	
	3. Promote negotiations with appropriate hydropower licensees	DNRC	
	4. Review proposed amendments to FPA for adequacy	DNRC	
	5. Monitor congressional actions relating to FERC	DNRC	
	6. Monitor all litigation related to FERC and state water management	DNRC	

REPORT OF
THE WATER POLICY COMMITTEE
TO THE 51ST LEGISLATURE
OF THE STATE
OF MONTANA

December 1988

Senator Jack Galt, Chair
Representative Dorothy Bradley, Vice-Chair

Representative Bob Marks
Representative Dennis Iverson
Representative Gary Spaeth
Senator Esther Bengtson
Senator Larry Stimatz
Senator Pete Story

Staffed by the Environmental Quality Council
Capitol Station
Helena, MT 59620
(406) 444-3742

Part One: Areas of Continuing Committee Oversight

Of the four areas addressed in this part, the committee devoted most of its attention to the state water plan and water research. This concentration occurred because new programs or activities were occurring in these areas, thereby requiring more committee attention.

I. THE STATE WATER PLAN

The Department of Natural Resources and Conservation (DNRC) made state water planning one of its major activities in 1988. Borrowing a framework used by the Kansas Water Office,[2] four areas were selected for study during the 1987-89 interim: water data management, agricultural water use efficiency, instream flow protection, and hydropower licensing. Examination of these areas will result in policy recommendations and possibly legislative proposals for consideration by the 51st Legislature.

In order to fulfill its statutory obligation to analyze and comment on the state water plan, the Water Policy Committee requested periodic updates from the DNRC on progress made in developing plan sections (beginning in February 1988). In addition, two committee members serve on the State Water Plan Advisory Council, which provides direction for the planning process.

A. Legislative History of the State Water Plan

The state water plan statute was first enacted in 1967.[3] The initial language is similar to the current statute (section 85-1-203, MCA), except that the then-existing Water Resources Board was directed to formulate the state water plan. In 1974, this authority was attached to the DNRC, though Board of Natural Resources and Conservation approval of the water plan and any revisions to it is required.[4]

The 1985 Legislature made minor revisions to the water plan statute upon the recommendation of the Select Committee on Water Marketing.[5] These revisions direct the DNRC to submit plan sections, amendments, and additions to the Water Policy Committee (in addition to the Legislature), and to consult with and solicit the advice of the committee in preparing the plan.

Beyond the plain wording of the bills, indications of legislative intent for the 1967 legislation and the 1974 amendments are sketchy at best. The 1985 amendments may be explained by the final report of the Select Committee on Water Marketing, which states that "[c]oordination and well-reasoned policies must be developed with the participation of the Legislature, other involved agencies, and the public," and that the "Legislature must understand the context of such actions and

must accept them as integral parts of an overall state water strategy."[6] The report also notes the importance of a state water plan in an interstate setting and states that "if the plain language of section 85-1-203 is applied, Montana does not have a plan."[7]

B. The Plain Language of the State Water Plan Statute

Section 85-1-203, MCA, contemplates three functions: a continuing comprehensive inventory of the water resources of Montana; a comprehensive, coordinated multiple-use water resources plan known as the "state water plan"; and a continuing inventory of the groundwater resources of the state.[8] The first and third functions -- the inventories -- are being addressed through various efforts of the DNRC, the Natural Resource Information System of the Montana State Library, and the Groundwater Information Center of the Montana Bureau of Mines and Geology. The second function -- the state water plan -- is the most-discussed and possibly most significant function in regard to water policy.

The requirements for the state water plan are both procedural and substantive. Procedurally, each plan section must:

* undergo public hearing in the state or in the area encompassed by the plan section; these hearings must be noticed in appropriate newspapers once a week for two consecutive weeks;

* be prepared in consultation with the Water Policy Committee;

* be adopted by the DNRC with the approval of the BNRC;

* be submitted to the Water Policy Committee and to each general session of the Legislature; and

* be published.

Substantively, the plan:

* must be a comprehensive, coordinated multiple-use water resources plan;

* may be formulated and adopted in sections corresponding with hydrologic divisions in the state;

* shall describe a "progressive program for the conservation, development and utilization of the state's water resources;" and

* shall propose the most effective means for applying these resources "for the benefit of the people, with due consideration of alternative uses and combinations of uses."

C. The New State Water Planning Approach

Prior to 1987, the state water planning effort consisted of studies and large-scale basin plans funded substantially by federal money. This work occurred primarily in the late-1970s and early 1980s, and resulted in very limited guidance for agencies. In 1987 the DNRC initiated its present process, which attempts to use planning as a proactive and dynamic problem-solving tool.

The state water planning process is guided by the ten-member State Water Plan Advisory Council (SWPAC), which consists of four executive agency members, four legislative members, and two public citizens, all appointed by the Governor.[9] Its tasks include recommending topics for study and providing ongoing guidance throughout the planning process.

The planning process is still being reviewed and revised. In general, however, the first phase of the process involves issue analysis, beginning with selection of study topics by the SWPAC. Each study topic is addressed initially by a technical advisory committee, which is composed of persons familiar with the topic. With staff support from the DNRC (and, as appropriate, other agencies), the technical advisory committee develops a study plan, reviews a draft background (issue) paper, and makes preliminary recommendations. The issue papers are then refined and forwarded to the SWPAC, along with an executive summary. The SWPAC reviews the issue papers and makes its own preliminary recommendations.

The second phase involves actual plan development. The SWPAC recommendations are summarized and presented with background information in a draft "plan section" for each topic. Upon approval by the SWPAC, the draft plan elements are submitted to public review and comment at public hearings throughout the state.

In the third and final phase, the SWPAC refines its recommendations and distributes revised plan sections for formal public hearing in at least two locations. Then, after a final review, the SWPAC submits the plan elements, along with proposals for legislation, for BNRC approval. Upon approval, final plan sections are formally submitted to the Water Policy Committee and the Legislature, and plan implementation begins.[10]

The planning cycle for the 1987-89 interim will require about one year. As noted earlier, the DNRC also provided periodic updates to the committee and requested and received committee comment.

D. Public Comment on the State Water Plan

Almost 2000 people attended the nine public hearings held in August on the four draft plan elements.[11] Nonetheless, some persons expressed concern over a lack of public involvement in the process, about unbalanced technical advisory committees, and about the process moving too quickly.[12]

Some persons also felt that the DNRC had too much control over the planning process. This may have served as the basis for comments suggesting that the Legislature must play a major oversight role in the water planning process.[13] Other comments include:

* the public meetings were poorly noticed and poorly timed given the drought and agricultural activity in August;

* the water planning process is needed, and cooperation among the various interest groups in the process is necessary;

* as a regulatory agency, the DNRC has an inherent conflict of interest that affects its credibility in the planning process;

* the bottom line of the planning process must be clear recognition and protection of existing water rights;

* the planning process should not proceed until the adjudication is complete;

* the state does not need a water plan or, at least, there is some uncertainty over the need;

* the public is unclear as to the operation and ultimate effect of the state water plan;

* the state water plan should not be a vehicle for addressing major controversies over water; and

* Montanans are very concerned about the management of our water resources.[14]

The comments will lead to some changes in the process. First, the SWPAC has indicated that the planning cycle should be extended to two years for complex issues. Second, efforts will be made to obtain more public participation in the first phase of the planning cycle, in part through development of an expanded mailing list.

E. Policy Choices

Both the planning process and the water plan sections themselves pose policy questions. The options provided below

describe some choices that exist for the planning process. Not addressed are the substantive recommendations associated with the specific plan elements.

1. **Does the committee wish to suggest specific planning efforts?** As stated above, some substantive requirements are in place for the plan. The topics selected by the DNRC/SWPAC have been issue-oriented. Alternatives include:

a. **Recommend that the SWPAC continue to select topics for study.** The SWPAC solicits input from various parties, including agencies and the public, in selecting topics.

b. **Recommend or designate topics for study through the state water plan process.** The committee could suggest, or designate through legislation, topics that it feels might benefit from review under the state water planning process. Alternatively, the committee could request that the DNRC present the preliminary choices for committee review and comment.

c. **Recommend or direct a water development or conservation focus.** The statute contemplates a progressive program of water development, conservation and utilization of the state's water resources as a part of the state water plan. Given this emphasis, the committee could recommend that extensive efforts be undertaken to identify feasible sites for water development and/or conservation efforts. However, the statute also states that the plan should be a comprehensive, coordinated multiple-use water resources plan and that it should propose the most effective means of using water resources "for the benefit of the people."

d. **Other.** For example, the committee could address the level of planning that should occur.

Final recommendation: (a and c) The current process for determining plan topics should be continued, but with expanded effort to obtain public input concerning topic selection. Special consideration should be given to identifying feasible sites for water development, including sites for additional storage and conservation improvements.

2. **To what extent should public input be funneled into the planning process?** In its report to the 50th Legislature, the committee requested that public comment be solicited early and throughout the planning process.[15] As noted earlier, the present process allows for public input at various points, including through public meetings on draft and refined plan elements, limited membership on the SWPAC, and membership on technical advisory committees. Options include:

a. **Recommend continued efforts by the DNRC to involve the public in its planning efforts.** As illustrated by the

turnout at the statewide public hearings, the public is being notified and does have opportunity to comment on the planning documents. Also, the DNRC is reviewing avenues for obtaining public involvement earlier in the planning process.

b. **Recommend expanded membership on the technical advisory committees.** The committees might be expanded to include persons with practical, in addition to technical, background in the topic under consideration. To some extent, the DNRC undertook this approach when it expanded the technical advisory committee on instream flow protection in May 1988.

c. **Recommend more public representation on the State Water Plan Advisory Council.** Currently, the SWPAC has two public members, four legislators, and four executive branch representatives.

d. **Recommend regional meetings of the State Water Plan Advisory Council upon selection of topics for study.** This approach would enable the public to discuss its ideas and/or concerns directly with the advisory body at an early point in the planning cycle. The committee might also consider participating in, or co-sponsoring, the meetings.

e. **Recommend that a member of the State Water Plan Advisory Council attend all public meetings/hearings on the draft plan elements.** This would help ensure that the public has ample opportunity to communicate directly to the SWPAC.

f. **Other.** Other alternatives include 1) emphasize educational activities (through workshops, newsletters, etc.); 2) promote informal meetings with organizations to obtain input and answer questions; and 3) establish regional advisory councils to address the issues.

Final recommendation: (a, c and f) The DNRC should continue to aggressively solicit public participation in all phases of its planning efforts. To ensure formal input in decision making, several public representatives (perhaps six members selected by geographic region) should be considered for membership on the SWPAC. Finally, educational activities, informal meetings with organizations, and regional advisory councils should all be used to ensure ample opportunity for public input in even the earliest stages of plan development.

3. **Should an entity be required to approve the state water plan?** The present statute requires that the DNRC receive approval from the Board of Natural Resources and Conservation (BNRC) prior to adopting the state water plan. At issue is whether the BNRC should retain approval authority, particularly given that 1) the plan is a comprehensive, coordinated multiple use water resources plan involving the jurisdictional authority of the DNRC and other

agencies;[16] 2) the plan appears to be advisory only; and 3) the BNRC is not directly involved in developing the plan elements. Options include:

a. **Retain the status quo.** Section 85-2-113, MCA, grants the Board authority to adopt rules necessary to carry out provisions of the Water Use Act. Removing state water plan approval could be interpreted as undermining the Board's responsibility to ensure that the laws are being implemented properly.

b. **Remove the BNRC approval requirement.** Review by the BNRC might be unnecessary given the advisory status of the plan and the analysis and comment of the Water Policy Committee. A secondary issue is whether or not the DNRC should be required to adopt the plan.

c. **Provide for SWPAC approval.** The DNRC requested and obtained SWPAC approval before releasing the current plan elements. Making SWPAC approval a statutory requirement could be a substitute for approval by the BNRC.

If this option is selected, the SWPAC would require description by statute (see question 5).

d. **Provide for approval by another entity.** Options include requiring approval by:

i. the Governor;

ii. the agency board or commission with principal authority over the subject matter being examined;

iii. the Legislature;

iv. the Water Policy Committee.

Each of these options carries with it legal and practical implications that may require committee consideration.

Final recommendation: For this year's state water plan, the Water Policy Committee will review and comment on the plan sections as approved by the Board. The 1989 Legislature may then by resolution adopt the state water plan sections, stating any conditions, exceptions or additions to the elements within the resolution itself. In future years, other options for obtaining legislative or other approval without BNRC consideration should be explored.

4. **How should policy recommendations, including recommendations for legislation, be addressed?** The Water Policy Committee is consulted periodically (via updates at committee meetings) for

advice. Ultimately, the DNRC may develop legislation through the SWPAC that is submitted directly to the Legislature. At question is to what extent, if at all, the committee wishes to become involved in policy decisions, particularly legislative proposals, prior to a general legislative session. Optional approaches include:

a. **Retain the status quo.** In addition to monitoring by the Water Policy Committee, the Governor has appointed four legislators to the State Water Planning Advisory Council (of which two are Water Policy Committee members). The members serve upon request and at the pleasure of the Governor.

b. **Require that any policy recommendations resulting from the state water planning process be presented to the Water Policy Committee prior to the general session.** This option would ensure that the committee has an opportunity to comment in a timely manner on any final proposals, and would allow amendments prior to submission of bills to the Legislature.

c. **Require that any policy recommendations receive endorsement of the Water Policy Committee before submission to the Legislature.** This approach would ensure a final detailed review by a bipartisan legislative entity. On the other hand, this option could be viewed as an unnecessary intrusion into the powers delegated to the executive branch. An alternative is to require formal action by the committee for or against each policy recommendation.

d. **Other.** For this biennium, the committee may wish to conduct a special meeting during the session to review and comment on any proposals for legislation.

Final recommendation: (b and d) To ensure opportunity for detailed review by the legislative branch, the policy recommendations and proposed legislation resulting from preparation of plan sections should be formally presented to the committee prior to the general session. For this biennium, the committee contemplates a meeting early in the legislative session to review and comment on final plan sections and legislative proposals.

5. **Should the State Water Plan Advisory Council be established or described by statute?** The present SWPAC and its membership are declared by order of the Governor.

a. **No.** The present process appears to work satisfactorily and allows for flexibility.

b. **Yes.** Because of the importance of the state water plan to state water policy, the SWPAC and possibly its membership might be described by statute. The SWPAC's present membership includes four legislative members (bipartisan);

four executive branch representatives; and two public members. Additional options include:

i. increase or decrease the size of the committee;

ii. increase representation from the public;

iii. add federal and/or Indian representation;

iv. provide for election of the chairman;

v. attach the SWPAC to the Governor's Office, perhaps in a manner similar to the Reserved Water Rights Compact Commission;

vi. provide an alternative to appointment of all members by the Governor. For example, the Compact Commission receives appointments from the Governor, the Attorney General, and from the President of the Senate and Speaker of the House of Representatives.

Final recommendation: (a) The planning process should continue for another biennium before a statutory council is considered.

NOTES FROM PUBLIC MEETING
WITH DILLON AREA LANDOWNERS
REGARDING THE STATE WATER PLAN

DECEMBER 21, 1988
DILLON, MONTANA

DNRC REPRESENTATIVES

Gary Fritz
Gerhard Knudsen

MEETING FOCUS

1. The meeting was called at the request of Dillon area legislator, Representative Chuck Swysgood.

2. Fritz provided a brief overview of the water planning process.

3. Fritz discussed the development and prospective operation of a mechanism to lease water for instream purposes.

4. Citizens in attendance (approximately 75) asked questions and provided comment (primarily on the water leasing/ transfer concept).

NOTES

1. Landowners (i.e., holders of existing water rights) are concerned that it will prove very costly to participate in the water leasing process (i.e., hiring attorneys and obtaining the technical expertise needed to confirm or refute the findings of the applicant regarding adverse affect upon existing water users).

2. Return flows are not only essential for downstream water users but result in significant instream flow benefits.

3. Providing for the protection of instream flows provides free benefits to water users in downstream states.

4. The Red Rocks Water Users' Association has gathered data showing that the leasing of water for instream purposes will have significant and irreversible effects upon existing water users.

5. The effort to lease water for instream purposes should go on hold until more is learned about the ultimate effects of such a mechanism on existing water users.

6. A lease period of ten years is a quite a long time, especially when a lease may be renewed.

7. Many landowners are concerned with the permanent transfer of offstream water rights for instream flow purposes.

8. Water leasing aside, an impact to water users that is frequently overlooked is that of subdivision of land and transfer of water to a multitude of small, domestic water users.

9. The state water plan must reflect careful consideration of water storage as a means to deal with instream flow problems. Such an approach provides benefits to many users and would be more widely supported. It must be pursued as the first choice.

10. When determining the length of stream to be affected by a lease, it must always be on a case-by-case basis. Streams are too different from one another.

11. Water leasing for instream flow purposes will create a mess with our water rights system.

12. Water leasing for instream purposes will cause problems associated with the fact that needed return flows will not occur later in the irrigation season when they might be needed by other irrigators. They will "come through" as a "boom".

13. What are/were the effects of last summer's drought on the fishery resource across Montana? Specifically, what is the problem with our fishery resource that demands development of a water leasing mechanism? What is the nature and extent of such a problem?

14. Who would pay to administer a water lease?

15. Montana's water managers must consider developing very small dams on the headwaters lakes that are frequently found in Montana.

16. The high hazard designation can seriously limit the construction of new storage facilities. The rules are too stringent.

17. Who pays for controlling the weeds that may occur on idle farm land during the period that water is leased for instream flow purposes? Who pays the taxes?

18. The leasing of water may not be appropriate in many Montana river basins. On the other hand, there may be areas of the state where it may be quite appropriate.

19. The Montana Department of Fish, Wildlife and Parks should be the last agency allowed to lease water for instream purposes.

20. It will be important to allow an offstream water user to revert an instream lease to the original purpose without objection.

NOTES FROM MEETING WITH THE WATER RESOURCES SUBCOMMITTEE OF THE MONTANA STOCKGROWER'S ASSOCIATION

OCTOBER 6, 1988

ATTENDEES

DNRC: Gary Fritz, Gerhard Knudsen
Stockgrowers: Jerry Jack, Lorents Grossfield, Jess Kilgore, Dave Moon

GENERAL REMARKS

1. The Stockgrowers would be interested in provided input on the location of public meetings on the state water plan. As well, remain interested in cooperating in the effort to pursue development of the state water plan.

2. We should delete the options in the final drafts of the SWP. They may tend to confuse the readers as was the case during the review of the draft plan.

3. We should not show where we make the deletions as between the draft and the final plan. Again, it will make reading and comprehension difficult for many readers.

4. In announcing the public hearings,we should put out a special news release on the public hearings that highlights the draft final recommendations. Should reduce citizen apprehension over the plan and assure that they get before those people who are neither on our mailing list or members of organized public interest groups.

5. We should seriously consider holding more than two public hearings. Also, we should consider holding a hearing in Great Falls rather than Helena.

6. The Stockgrowers would be interested and willing to put an article on the status of the SWP in its upcoming newsletter if the DNRC could prepare a draft of the lead-in, recommendations, timeline, etc. Should try to get to Jerry Jack by October 14th.

7. Should change the cover in a manner that allows the reader to make a clear and easy distinction between the draft and final plan.

8. The department should hold informational meetings dealing with the planning process and seek comments on the process as well as any ideas for additional plan sections.

9. The issue of Federal reserved water rights and the implications to current users is one of great concern to the organization and is perhaps something that should be reflected upon through the water planning process. Providing the Stockgrowers' staff with a general briefing on the issue would be a valuable starting point in helping the group better understand and deal with the issue.

COMMENTS ON REVISED PLAN

Instream Flow Protection

1. Should hold off on adopting the public health criteria or junk it in its entirety. Can deal with this matter by other means (e.g.; reservations). This idea will put a greater financial burden on water permit applicants in order to deal with the "guns" of the agencies concerned with health matters. This is clearly a "foot in the door" to allowing objections for purposes of protecting aquatic habitat. Finally, this additional criteria will create delays in processing permits.

2. In the base priority date recommendation, make sure to add the term "substantially impair" to the subordination discussion.

3. Would oppose any effort to change the current "10 year" and "5 year" criteria in the reservation statute.

4. The 50 percent cap concern is likely a non-issue at this point.

5. Throughout the plan we should be careful to use the terms "instream" and "offstream". Should also consider explaining the "consumptive" nature of instream water rights -- at least in our public informational efforts.

6. Lease option

   - Generally see that there would be some merit to this idea although would oppose any effort to pursue a permanent transfer concept.

   - Feel it may be hard to get together by the session on what should be the specifics of a lease proposal.

   - One option is to delay action on this matter although would also like to see something like this "on the books" if we are faced worth another dry summer.

   - Must be very careful in designing a lease concept and

should involve agricultural groups in setting the criteria.

- Agree that leases should only be held by a public entity.

- Leases should only be used during drought periods and then only for short periods.

- Might consider subjecting the first few leases to scrutiny by the legislature, the Water Policy Committee, some specially established committee representing a cross-section of interests. Don't want this whole concept getting out of hand. Need some controls.

- In addition to instream flow purposes, could consider allowing municipalities to lease water rights.

- Leases will be quite costly to purchase.

- Can we develop a legislative proposal in time to go the agricultural constituency before the legislature and convince them of the merits of a lease concept prior to the legislative session?

- Some ideas that should be considered when designing a lease bill: short time frame (10 years); should it be renewable?; abandonment?; keep the river reaches involved only as long as needed to deal with a specific problem (the shorter the reach involved, the better we will be able to deal with the return flow concerns that are certain to arise).

7. The research recommendation is fine, but would hope that the groundwater recommendation could also be included. Feel that the return flow research should be the first priority. Make sure that in the research regarding instream flow methodologies that we retain the "validation" wording. We need to know how much water is really needed to protect instream resources. It is realized that the whole process. for defining instream flows is in a state of evolution.

Hydropower

1. Have no problem with the proposed plan section.

Agricultural water Use Efficiency

1. Agree with the reasons for pursuing the agricultural efficiency issue <u>except</u> the reference to public trust. It should be deleted in the final draft.

2. Like the decision to rewrite the plan section so as to focus on efficiency measures as they will benefit agriculture. The previous version was very confusing since, in many regards, it was very similar to the instream flow section.

3. The rewritten version should look at engineering efficiency rather than economic efficiency as was done in the first draft.

4. In the education effort (now to be in the process section recommendations), should provide discussion on what is the public interest. Feel it is more than just instream flow.

5. During the public education effort, must be careful to not provide information on how the users can utilize provisions of the law to "nail" their neighbors.

6. In pursuing the Pick-Sloan funding, avoid support of funding proposals that place the Department of the Interior in the driver's seat when implementing funded actions.

7. On page 13, item D, noted the need for a solid understanding of how return flows work in order to deal effectively with this recommendation.

LEASING WATER RIGHTS FOR INSTREAM FLOWS: SOME QUESTIONS ON POLICY DESIGN

I. PREAMBLE

One of the recommendations adopted by the State Water Plan Advisory Council to enhance instream flows is:

> "to allow public entities to lease water rights from offstream or consumptive uses for purposes of protecting instream flows in important stream reaches. This opportunity is entirely voluntary and would not jeopardize existing offstream water rights. It would result in the temporary transfer of an offstream water right to enhance instream flows during critical low flow periods. Under the lease agreement, the offstream water user would still hold the water right and be compensated for leaving water in the stream during certain years."

This recommendation is based on several assumptions, including:

1. Water rights are severable from the land.
2. A lease is a temporary transfer of a water right, not a permanent transaction.
3. Water rights currently cannot be leased from offstream uses for the purpose of instream use.
4. Leases would not be allowed if they adversely affected other water users--either junior or senior.

II. PURPOSE OF THE LEASE

1. Should the purpose of an instream flow lease be limited to:
   - A. Streams identified by the Department of Fish, Wildlife and Parks and/or the legislature as "blue ribbon" trout streams?
   - B. Any stream throughout the state, but only for fisheries?
   - C. Any stream throughout the state, but for fisheries and water quality?

D. Any stream for any purpose?

E. Other.

2. Should leasing be limited to enhancing instream flows in emergency situations, or should it include long-term arrangements to increase flows in regularly dewatered basins?

III. CHARACTERISTICS OF THE LEASE

1. Should there be a maximum time period for the lease? If so, how long?

2. Should leases be allowed to be renewed? If so, should the renewal be subject to a separate change application, or should the original change application take the possibility of a renewal into consideration?

3. How frequently, out of a ten-year period for example, should the leasee be allowed to exercise his/her option to the water right?

4. Should the lease be limited to a given time of the year--e.g., congruent with the timing of the offstream use?

5. What quantity of the original water right is leasable:

   A. The entire amount?

   B. Only the amount actually consumed--i.e., the "net depletion"--at a site-specific location?

   C. A generic or standard amount per acre?

   D. Other.

6. Should the extent or length of the instream flow (i.e., the place of use) be:

   A. Limited to the point of diversion?

   B. The historic flow to the headgate and the depleted flow below the headgate?

   C. Agreed to by the parties and defined in the change of use proceedings?

D. Other.

7. Should the instream flow be measured:

   A. At the historic point of diversion?

   B. At both the top and bottom of the defined stream reach?

   C. Other.

8. Should the priority date for the instream flow lease be:

   A. The same priority date as the offstream water right?

   B. Other.

9. Should private entities be allowed to contribute funds to public entities for the purpose of leasing water rights for instream uses? If so, should there be a limit on the amount of funds that private entities can contribute?

IV. PROCESSING THE LEASE

1. Should the lease have to go through two change proceedings--one before the leased use begins and one when the water right reverts to the original right holder?

2. Who should bear the burden of proving that the lease would not adversely affect other water rights holders?

   A. The potentially affected parties?

   B. The right holder?

   C. The leasee?

   D. Other.

3. Should potentially affected offstream water users have to object to a lease every time their right is potentially affected?

V. ADMINISTERING THE LEASE

1. How should potentially affected third parties be notified:

   A. Newspaper?

   B. Personal letter?

   C. Phone call?

   D. Other.

2. Who should be responsible for notifying other water users that a leased right will be exercised at a given time:

   A. The leasee?

   B. The rightholder?

   C. A water commissioner?

   D. Other.

3. Should an instream leaseholder be allowed to:

   A. Object to a permit or change application?

   B. Become a party to an on-going general adjudication?

   C. Petition for basin closure?

   D. File a claim on abandonment of other water rights?

4. If a new permittee becomes dependent on the streamflow and return flow associated with the instream flow lease, should he/she be allowed to object to the reversion of the lease?

IV. MISCELLANEOUS

1. Should leases be approved by the Legislature?

2. Should the leasing provisions be temporary, with the possibility of being renewed and perhaps made permanent, or should they be presented as permanent provisions in Montana water law?

3. Should the abandonment statute be amended to explicitly provide that the leasing of an offstream water right to an instream flow does not consitute abandonment?

LEASING WATER RIGHTS FOR INSTREAM FLOW PURPOSES

REFLECTIONS OF A SELECT COMMITTEE

INTRODUCTION

On November 15, 1988, the Department of Natural Resources and Conservation invited individuals representing various organizations and perspectives to meet and discuss how a water leasing program for instream flow protection might be designed. The focus of discussion was a department paper titled "Leasing Water Rights for Instream Flows: Some Questions of Policy Design." In that report, alternative means of implementing a leasing mechanism were set forth.

The reflections of the ad hoc committee (attendance list appended) and the general sense of direction it provided is set forth below. ***This discussion is generalized and has not been reviewed or approved by the participants.***

MAJOR ISSUES

Purpose of Instream Flow Leases

Several participants felt that leasing should be limited to fishery purposes in specific, high-quality stream reaches. Others argued that water quality maintenance purposes were also important, particularly for protecting drinking water sources and for dilution purposes associated with municipal discharge permits. The fact that municipalities already have the authority to condemn water rights was noted. It was also observed that, if leasing is a good thing, it should not be limited to specific streams or beneficial uses. If the leasing of water for uses other than instream flows is allowed, the leasing concept may be more acceptable. Many felt that, as a practical matter, the application of the leasing option would be limited to a few areas with important fisheries because of the likely high cost of leasing. However, no one was prepared to identify precisely where those areas might be located. It was generally agreed that a leasing program would have limited utility as a tool in emergency circumstances since the statutory process for changing offstream water uses to the instream purpose would require time to complete.

Allowable Leasing Periods

Participants felt that something in the range of ten to twenty years should be established as the maximum time period for a lease. However, such a lease should be renewable. A mandatory review should be required after the first exercise of any lease. Subsequent reviews could also be made upon request to the Department of Natural Resources and Conservation. The purpose of such reviews would be to "fine tune" operations under the lease to insure there are no adverse effects on existing water users.

Quantity of Water Subject to Lease

Only the amount of a water right historically consumed should be leasable, and only for the period when the historical use took place. Determining the amount consumed would be a key objective of the legal proceeding to change the purpose of water use to instream resource protection. This would be consistent with the current operation of Montana water law.

Location of Leased Use

Some participants felt that a limit should be imposed on how far downstream the leased use should occur from the original point of diversion. As a maximum, it should not extend beyond the tributary on which the original diversion was made. Others suggested that there should be no limit and that the matter be the object of negotiation between the parties to the lease. The change of use proceeding would ultimately serve as the forum for determining the extent of the stream reach involved.

Measurement

Measurement requirements should not be legislated, and must be determined by the specific circumstances of any given lease and its potential for adverse effects. The Department of Natural Resources and Conservation currently has the authority to require measuring devices as a condition to a change in water right.

Priority Date

The priority date of the leased use should remain the same as that for the original water right. However, by the operation of law, the lease cannot have any adverse effects on existing users, including those with junior water rights.

Private Funding of Leasing by Public Entities

The group generally agreed with the general premise of water leasing as set forth by the State Water Plan Advisory Council. That is, leasing for instream flow protection should be limited to public entities. Such entities should be state agencies that are subject to review by the legislature. However, there were no objections to allowing private funding for water leasing by public entities. Some discussion was focused on whether those private groups contributing funds might attempt to dictate policy to the public entity conducting the leasing program.

Processing Lease Applications

The parties to the lease agreement should have the burden of proving that the water right lease would have no adverse effect on existing users. A comprehensive, one-time process to lease all necessary water rights in a stream would be less costly to both the lessee and the parties objecting in the change proceeding. This would be preferable to several change proceedings in a single stream. Notice to potentially affected third parties should be provided in the local newspaper and directly through the mail.

Administering Leases

When exercising a lease, the lessee should notify the local water commissioner, where one exists. If there is no commissioner, the lessee should contact the potentially affected water users. The department should also advise new permittees that they have no right to object to the exercise of water leases for instream flow purposes or to the reversion of those leases to the original purposes. When addressing the issue of who should protect interests in the leased water right, it was felt that both the lessee and lessor should probably be involved. The lease contract might also designate one of the parties as the representative. The bottom line is that, under law, both parties to a lease agreement have a protectable interest in the water right.

Miscellaneous

It was generally felt that the legislature need not be involved in approving leases. On the other hand, the statute establishing the leasing program should contain a sunset provision requiring a review of the program in ten years. Leases in effect at the time of the review would continue, even if the leasing statute were repealed. Finally, the group agreed that the abandonment statute should be amended to clearly state that

the leasing of water for instream purposes does not constitute an abandonment of the original offstream use.

PARTICIPANTS

Name	*Representing*
Jo Brunner	Montana Water Resources Association
Roy Jones	Department of Natural Resources and Conservation (Water Rights Bureau)
Mike McLane	Department of Natural Resources and Conservation(Water Rights Bureau)
Lorents Grosfield	Montana Association of Conservation Districts
Jim Moore	Self
Larry Peterman	Montana Department of Fish, Wildlife and Parks
Pat Graham	Montana Department of Fish, Wildlife and Parks
Jim Belsey	Trout Unlimited
Stan Bradshaw	Trout Unlimited
George Ochenski	Self
Jan Konigsberg	Montana Land Reliance
Byron Bayers	County Commissioner, Madison County
Ed Lord	Montana Farm Bureau Federation
Jess Kilgore	Montana Stockgrowers; Gallatin Agricultural Protection Association
Jay Chamberlain	Bitterroot Irrigation District
Bob Marks	Speaker, Montana House of Representatives
Alan Mikkelsen	Flathead Joint Board of Control
Bob Thompson	Montana Environmental Quality Council
Marvin Miller	Montana Bureau of Mines and Geology
Gary Fritz	Montana Department of Natural Resources and Conservation

Rich Moy	Montana Department of Natural Resources and Conservation
Gerhard Knudsen	Montana Department of Natural Resources and Conservation
Matt McKinney	Montana Department of Natural Resources and Conservation
Curt Martin	Montana Department of Natural Resources and Conservation

LEASING WATER RIGHTS:

COMMENTS BY THE WATER RIGHTS BUREAU

The Water Planning staff met with the Water Rights Field Office Managers on October 21, 1988 to discuss the leasing of offstream water rights to instream uses. The focus of the discussion was a staff paper titled "Leasing Water Rights for Instream Flows: Some Questions on Policy Design." The following discussion summarizes the Field Office Manager's comments and answers to the various questions.

In addition to addressing all the questions on the leasing paper, the discussion resulted in two general comments. First, the group unanimously agreed that permanent transfers of water rights from offstream to instream uses should be allowed. They argued that such transactions are much easier to process and administer and provide water users additional flexibility to meet their objectives. The second general comment was that the leasing mechanism should be as unconstrained as possible, allowing all the affected parties to work out the details of the agreement on their own and through the change of use process.

[NOTE: The accuracy of these comments are subject to the approval of those in attendance at the meeting.]

II. Purpose

1. Leases should be allowed for any purpose - instream or offstream. Any public or private entity should be able to lease water.

2. Leases should be allowed for both short-term emergency situations (i.e., only when needed to maintain flows in critical times of the year) as well as long-term arrangements (i.e., to increase flows in dewatered basins).

III. Characteristics of the Lease

1. Allow leases for up to 50 years, as currently provided in the state's water leasing program (Section 85-2141, MCA). Other options discussed and left undecided included 10 years, no limit, and

periodic review.

2. Leases should be renewable. However, the process of renewing the lease should be left open due to the complexity of the issue. Other options discussed and left undecided included requiring a minimal review and going through the entire change process again.

3. Let the parties decide how frequently the lessee can exercise his/her option to the water right. Third party effects and concerns will be addressed through the existing change proceedings.

4. The timing of the leased use must be consistent with the timing of the original offstream use--as defined by the right. The exercise of the leased use must reflect both the pattern and season of the offstream use.

5. A generic or standard amount of water per acre should be leasable, unless site-specific conditions warrant the use of the "net depletion" or some other appropriate amount.

6. The location at which the instream flow lease would be exercised should be agreed to by the parties and specifically defined as the place of use in the change application. The place of use may be adjusted through the hearings process.

7. The measurement of the instream flow should be left up to the parties involved. The need for actual measurements, along with the type and location of such measurements, is likely to vary from stream reach to stream reach.

8. The priority date for the instream flow lease should be the same priority date as the offstream water right. Without the original priority date, the instream flow lease becomes worthless.

9. Private parties should be allowed to contribute funds or other resources to public entities for instream flow leases without any limitations. The legislature can dictate how much or how little public entities can spend on such leases.

IV. Processing the Lease

1. The lease should only go through one change of use

proceeding - before the leased use begins. Intervening permittees should not be allowed to object to the reversion of the lease. However, their permits should include a statement that a lease arrangement exists and that they would not be able to object to the reversion of the lease to the original use. Another option discussed and left undecided was that, either during the process of renewing a lease or after a certain period of time (e.g., five or ten years) the leases should be reviewed. This would allow third parties to identify adverse impacts after the lease has been in effect for some time.

2. The lessee (or the applicant for a lease/change) should bear the burden of proving that the lease would not adversely affect other water rights holders.

3. There should be only one change of use proceeding. Third parties could object at that change of use proceeding but not each time the lessee exercises his/her option to leave water instream. However, as mentioned above, there was also considerable argument to require periodic reviews so that adverse affects not identified and mitigated during the original change proceeding could be addressed.

V. Administering the Lease

1. As a matter of common courtesy, instream flow lessees may notify potentially affected third parties that the option to the water right is going to be exercised in a given year. However, this type of notification should not be required as a matter of law. Assuming that the lessee decides to notify other water users, he/she should be able to use whatever means of communication he/she deems appropriate.

2. The lessee should bear the responsibility for notifying other water users that a leased right will be exercised at a given time.

3. The instream leaseholder should have the same rights or standing as the original offstream water right holder in terms of making a call on the river; objecting to a permit or change application; becoming a party to an on-going general adjudication; petitioning for basin closure; and filing a claim on abandonment of other water rights. In essence, the

original water right and the leased right should be considered two separate water rights. If a conflict of interest arises between the two rightholders, their problems should be resolved through negotiation and ultimately the hearings process, just as with any other water rights dispute.

4. A water user that is granted a permit after the lease/change process is complete should not be allowed to object to the reversion of the lease. However, the new water user's permit should specify that a lease arrangement is in effect.

VI. Miscellaneous

1. Leases should not be approved by the legislature given at they may be unable to assess the factual basis of any change and that they only meet every other year.

2. The leasing provisions should be "permanent" law. If, for whatever reason, the legislature later feels that the leasing process is not desirable, it may always delete the provisions.

3. The abandonment statute should be amended to explicitly provide that leasing an offstream water right to an instream flow does not constitute abandonment of the original use.

COMMENTS OF THE FIELD OFFICE SUPERVISORS ON THE STATE WATER PLAN

OCTOBER 5, 1988

1. THE CONCEPT OF LEASING WILL DISRUPT THE PRIOR APPROPRIATION SYSTEM. ESPECIALLY THE CASE IF CONSUMPTIVE WATER USERS GET INTO THE PICTURE. VERY DIFFICULT TO SORT OUT HOW TO ADMINISTER RIGHTS IF MANY ARE USING LEASED FLOWS ALONG WITH THEIR NORMAL WATERS

2. UNDER A LEASING ARRANGEMENT, THE USERS WON'T KNOW WHAT SORT OF RETURN FLOWS THEY ARE GOING TO GET FROM YEAR TO YEAR.

3. A PERMANENT WATER TRANSFER REDUCES THE UNCERTAINTY TO THE EXISTING WATER USERS.

4. MAKE LEASES FOR INSTREAM FLOW PURPOSES ONLY.

5. LEASING WILL CREATE AN ADMINISTRATIVE HEADACHE.

6. ACTING ON WATER LEASES WILL BE A VERY SLOW, TEDIOUS PROCESS.

7. EDUCATION OF THE PUBLIC IS IMPORTANT.

8. CAN ONLY LEASE OR TRANSFER THE NET DEPLETION AMOUNT. PUT THE BURDEN ON THE APPLICANT TO PROVE THE DEPLETION AMOUNT.

9. HOW DO WE DEAL WITH THE ABANDONMENT ISSUE WITH WATER LEASES?

10. IN SOME YEARS, EVEN LEASES WON'T DO A THING TO HELP THE INSTREAM FLOWS.

11. IF THE PUBLIC REALIZES THE SAFEGUARDS INHERENT IN THE CHANGE PROCESS, THEY MAY BE MORE RECEPTIVE TO THE WHOLE IDEA OF WATER LEASES/TRANSFERS.

12. WE PROBABLY WON'T BE ABLE TO SELL A LEASE ANY EASIER THAN A PERMANENT TRANSFER.

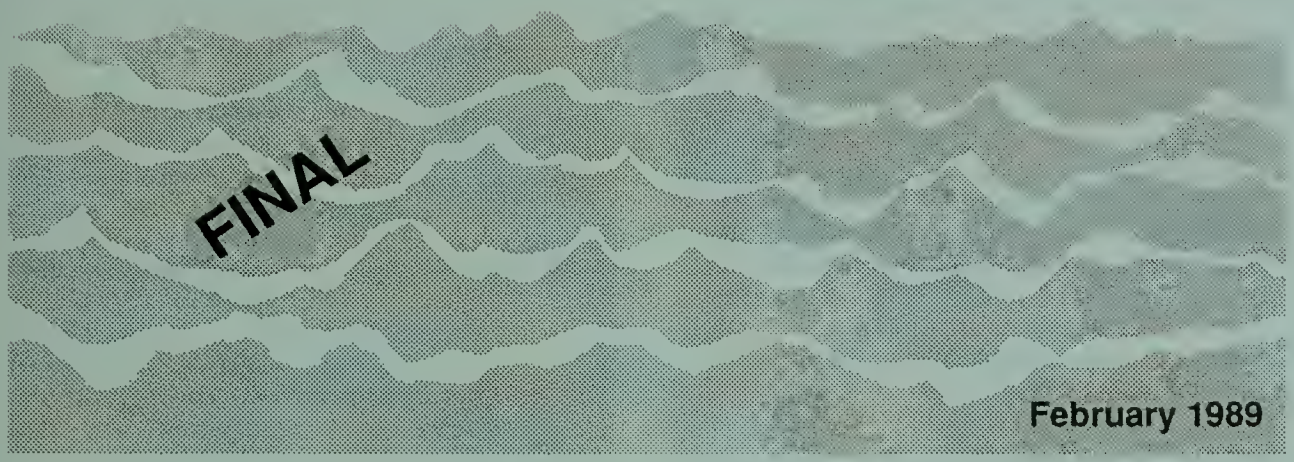
13. WILL THE REACTION TO THE LEASES BE ANY DIFFERENT THAN THE REACTION TO PERMANENT TRANSFERS?

14. IT MIGHT BE BETTER TO HOLD OFF ON PROMOTING THE LEASE ARRANGEMENT FOR AWHILE AND EDUCATE THE PUBLIC TOWARD THE GOAL OF GETTING UNDERSTANDING AND SUPPORT.

15. POSSIBLY PROPOSE BOTH A LEASE AND A TRANSFER FOR THE PLAN AND THEN MEET WITH INTEREST GROUPS TO GET THEIR REACTION.

MONTANA WATER PLAN

Management Section



February 1989

Subsection: Instream Flow Protection

Introduction 2
Background 2
Policy Statement 2
Issues and Recommendations 3
  Issues 3
  Recommendations 3
Plan Implementation 4
  Legislative Action 4
  Administrative Action 4
  Financial Requirements and Funding Strategies 4
  Time Schedule 5

WATER RESOURCES DIVISION • DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

1520 EAST SIXTH AVENUE • HELENA, MONTANA 59620 - 2301 • (406) 444-6637

INTRODUCTION

Water uses may be differentiated on the basis of whether they involve withdrawing water from a source of supply. Offstream uses divert water from a natural watercourse. This withdrawn water is then either used and returned to the watercourse or completely consumed. By contrast, instream uses maintain a specified level of flow in the natural watercourse.

The allocation of water in Montana has traditionally focused on the important task of satisfying offstream uses for domestic and commercial purposes, irrigated agriculture, industry, and mining. While these offstream uses remain critical to the growth and development of the state, there has been an increasing demand to leave water in the stream, unavailable for offstream diversion below a specified level, for fish, wildlife, recreation, and water quality. Montana law (Section 85-1-101(5), MCA) provides that "The water resources of the state must be protected and conserved to assure adequate supplies for public recreational purposes and for the conservation of wildlife and aquatic life." In addition, Section 75-5-101(1), MCA states that "It is the public policy of this state to conserve water by protecting, maintaining, and improving the quality and potability of water for public water supplies, wildlife, fish and aquatic life, agriculture, industry, recreation, and other beneficial uses."

Based on these and other statutory policies, natural resource management agencies are taking steps to protect instream flows through a variety of programs and practices. The purpose of this plan component is to identify the issues involved with maintaining and enhancing instream flows, and to present recommendations for resolving them.

BACKGROUND

In 1969, the state took its first steps to statutorily allocate water for instream use. The Legislature established so-called "Murphy Rights" on the unappropriated waters of twelve "blue ribbon" trout streams to maintain stream flows necessary for the preservation of fish and wildlife habitat (Section 89-801(2), RCM, 1947). In 1973, state efforts were expanded with the enactment of the Montana Water Use Act, which not only provided an opportunity to reserve water for future diversionary and consumptive uses, but also for maintaining instream flows (Section 85-2-316, MCA). To date, instream reservations have been established only in the Yellowstone River Basin. Several other streams have received instream flow protection pursuant to Section 85-2-223, MCA, which allows the Montana Department of Fish, Wildlife and Parks to represent the public in adjudication proceedings for purposes of documenting public recreational uses of water established prior to 1973. Instream flows are also maintained on several streams by releasing water from reservoirs during critical times of the year. Finally, the Department of Natural Resources and Conservation (DNRC) may condition water use permits for large appropriations on the basis of reasonable use criteria which include the protection of instream flows (Section 85-2-311(2)(c), MCA).

In addition to state efforts to protect instream resources, federal agencies and tribal governments have also taken steps to ensure the maintenance of instream flows. The Wild and Scenic Rivers Act (16 U.S.C. 127) has been used to protect instream resources on the North, South, and Middle Forks of the Flathead River, and on one reach of the Missouri River. Federal land management agencies are studying the possibility of adding rivers to the wild and scenic river system, thereby protecting additional instream resources. Through its special use permitting process, the U.S. Forest Service also protects instream flows by regulating access to developers seeking to divert water within the national forests (43 U.S.C. 1761-1771 (1982)). The federal reserved water rights doctrine may give federal resource management agencies and tribal governments another mechanism to manage instream resources. Finally, tribal governments, such as the Confederated Salish and Kootenai Tribes of the Flathead Reservation, are claiming aboriginal fishing rights to protect instream flows under their respective treaties with the United States.

Although the state of Montana has made significant progress in protecting instream flows, some of the existing programs and practices need refinement if they are to be effective. In certain cases, new legal and institutional mechanisms also may be needed to enhance instream resources.

STATE WATER PLAN POLICY STATEMENT

Instream flows are an important use of water, and mechanisms should be developed and refined to protect and enhance instream resources. However, instream flow protection activities must not adversely affect existing water rights and should be weighed and balanced against alternative future uses of water.

ISSUES AND RECOMMENDATIONS

Issues

Four issues need to be addressed with respect to instream flow protection. They are:

1. Inadequate consideration of instream flow values in the water use permitting process.
2. Insecurity of instream water reservations.
3. Need for enhancement of instream resources in dewatered basins.
4. Need for research on instream resource management decisions.

Recommendations

1. Permitting Process

The existing criteria for issuing a water use permit, as outlined in Section 85-2-311, MCA, may not adequately provide for the consideration of instream flow values. It is not clear whether the water permitting process allows for the consideration of instream flow values other than when instream flow water rights have been established. To date, many streams in Montana with important instream values do not have the necessary protection of an instream flow right. Water permits for new consumptive use continue to be granted before instream flow rights are established. Consequently, in certain areas of Montana, instream resources are subjected to further depletions.

The recommended solution to this issue is to promote more timely acquisition of instream flow reservations by assigning a priority date at the time a qualified applicant submits a notice of intent to reserve water (instead of several years later when final reservation decisions are made). Under this approach a "base" priority date would also be established for all reservants at the time the first notice is submitted for any given stream reach or river basin. Once such a notice is submitted, all qualified applicants with an interest in the stream (including those needing water for offstream purposes) would have the opportunity to prepare and submit applications within a specified time period and receive the same base priority date. In making its final decision on the applications, the Board of Natural Resources and Conservation (BNRC) would also weigh and balance the reservation requests against water use permits granted since the base priority date. The BNRC could subordinate reservations to water use permits if the purpose of the reservations is not substantially impaired.

2. Security Of Instream Reservations

The current reservation process may not provide adequate security to instream reservations. If the BNRC finds that the total amount of an instream flow reservation is not needed to fulfill its purpose, and a qualified applicant can show that its need outweighs the need of the instream reservation holder, the excess water may be reallocated to the competing applicant (Section 85-2-316(11), MCA). Such actions may not occur more than once every five years. Moreover, all reservations are to be reviewed at least once every ten years, and if the objectives of the reservation are not being met, the Board may extend, revoke, or modify the reservation (Section 85-2-311(10), MCA).

The recommended solution to this issue is to evaluate the relative security of instream flow reservations after the BNRC completes its review of the Yellowstone River reservations in 1989. This strategy is recommended because it is difficult to evaluate the security of instream reservations, and thus determine what action is needed, without first going through the process of making a ten-year review. The evaluation would identify and assess all the problems associated with the security of instream reservations.

3. Enhancing Instream Flows

Instream resources are often threatened in streams that are subject to regular or periodic low flow conditions. The issue here is not how to maintain existing flow levels, but how to increase or enhance the flow levels in certain streams.

The first recommendation to address this issue is to allow the Department of Fish, Wildlife and Parks to lease water rights from offstream or consumptive uses for purposes of protecting instream flows in important stream reaches. This opportunity is entirely voluntary and would not jeopardize existing offstream water rights. It would result in the temporary transfer of an offstream water right to enhance instream flows during critical low flow periods. Under the lease agreement, the offstream water user would still hold the water right and be compensated for leaving water in the stream during certain years. This recommendation would also allow for the temporary emergency leasing of offstream or stored water rights to protect instream resources during critical low flow periods. Leases under this approach could not occur if they would result in adverse effects to existing water users.

A second recommendation is to support public entities in purchasing or leasing water stored in reservoirs above dewatered streams and in revising the operating procedures on such reservoirs. In addition, the feasibility of new storage projects to enhance instream resources should be assessed. Finally, cooperative solutions at the local level, such as irrigation scheduling, are supported.

4. Research

To improve the management of instream resources, research is needed to evaluate:

a. The effect of return flows on the maintenance and enhancement of instream resources.

b. Instream flow quantification methods to determine if existing methods result in an inappropriate amount of water for instream resources.

c. The physical availability of water to meet the demands for instream resource protection.

PLAN IMPLEMENTATION

Legislative Action

The legislature would have to revise Section 85-2-316(9), MCA to allow the BNRC to establish a base priority date for all reservants at the time the first notice of intent to apply for a water reservation is submitted for a particular stream reach; to define the time limit within which competing applications must be submitted; and to allow the Board to subordinate reservations to water use permits granted since the base priority date.

The legislature would also have to enact a statute to allow the voluntary leasing of water from offstream uses to instream uses. Some of the statutory modifications that may be needed include changing the definition of "appropriate" in Section 85-2-102(1), MCA and clarifying the change statute in Section 85-2-402(2)(b), MCA. It may also require a modification or clarification in the abandonment statute in Section 85-2-404, MCA.

Administrative Action

To determine the relative security of instream flow reservations, the DNRC will, in cooperation with the Instream Flow Technical Advisory Committee, evaluate both the five-year and ten-year review processes after the BNRC completes the Yellowstone River reservation review. The DNRC will prepare a brief report for the State Water Plan Advisory Council (SWPAC) outlining the options and recommendations for addressing this problem.

To facilitate research on the three areas outlined above, the DNRC will work in cooperation with the Water Resources Research Center (WRRC) at Montana State University. The focus of this cooperative effort will be: (1) to identify leading researchers in the topic areas; (2) to survey the current state of research in each of the areas; (3) to consult with resource management agencies and water users to identify research needs; and (4) to outline research strategies, including financial requirements and sources of funding. Research proposals in these three areas will receive a high priority by the Research Center for funding. Periodical "progress reports" will be made to the SWPAC.

To assess the feasibility of new storage projects to enhance instream flows in dewatered basins, this issue should be incorporated into a state water plan section devoted exclusively to water storage projects.

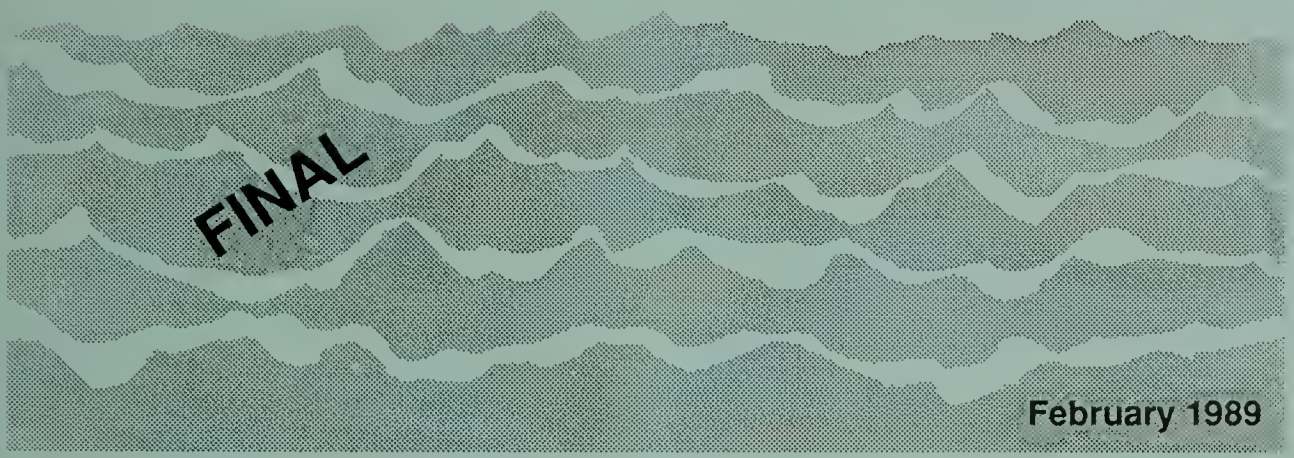
Financial Requirements and Funding Strategies

Funding may be necessary to conduct research on the three areas outlined above. Periodic progress reports to the SWPAC will outline the financial requirements and funding strategies for research.

Time Schedule

Activity	Responsibility	Deadline
A. Development and Implementation Tasks		
1. Draft legislation	DNRC	January 1989
2. Enact legislation	Legislature	April 1989
3. Evaluate security of instream reservations	DNRC	June 1989
B. Ongoing Tasks		
1. Reservoir management and cooperative solutions	DFWP, DNRC, others	
2. Research	DNRC, WRRC	

MONTANA WATER PLAN
Management Section



Subsection: Agricultural Water Use Efficiency

Introduction 2
Background 2
Policy Statement 3
Issues and Recommendations 3
  Issues 3
  Recommendations 3
Plan Implementation 3
  Legislative Action 3
  Administrative Action 4
  Financial Requirements and
    Funding Strategies 4
  Time Schedule 4

WATER RESOURCES DIVISION • DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

1520 EAST SIXTH AVENUE • HELENA, MONTANA 59620 - 2301 • (406) 444-6637

INTRODUCTION

Agriculture is Montana's largest business, providing about one-third of the total state income from primary industries. Irrigation contributes roughly one-quarter of agricultural income and, importantly, stabilizes agricultural production during the all-too-frequent dry years. Satisfying agriculture's vital demand for irrigation water requires the development and extension of water supplies through a combination of management strategies, including water storage. Another method is to improve the efficiency with which water is used.

The benefits of improved agricultural water use efficiency are diverse and include:

1. Improved ability to withstand periods of drought.
2. Increased irrigated acreage through the use of saved water.
3. Improved performance of aging irrigation facilities.
4. Increased irrigators' profits when the benefits of more efficient water use (increased crop production and sometimes decreased operating costs) are greater than the investment cost.
5. Reduced soil erosion and improved water quality.
6. Help in meeting the needs of current water users once the prior reserved rights of Indian tribes and the federal government are quantified and put to use.

Along with these benefits, improving water use efficiency may be important in terms of interstate water allocation. The U.S. Supreme Court has indicated that state conservation efforts will be considered if it is called upon to divide the waters of interstate rivers. The Court could decide to award smaller shares to states making no effort to increase water use efficiency, reasoning that these states could meet their future needs by saving more water.

BACKGROUND

Any strategy to improve agricultural water use efficiency must reflect an appreciation of several difficulties. First, because each irrigation situation is different, improving water use efficiency requires a case-by-case consideration of a number of complex geologic, hydrologic, and economic factors. Second, irrigation efficiency improvements can be very expensive. Third, water uses within a basin can be extremely interdependent. One irrigator's return flows or recharge to ground water can be another irrigator's water supply. Therefore, improving the efficiency of one water user could adversely affect the water supply of others. Fourth, while Montana law protects water users from adverse effects caused by other people's changes in water use, the law does not clearly establish who owns the right to water saved without adverse effects to others.

A number of options are already available to overcome some of these problems. The Montana Cooperative Extension Service, local conservation districts, and a number of other state and federal agencies provide technical assistance and information on water conservation measures. The Montana University System also supports research to improve our understanding of the complex factors that affect irrigation efficiency. Research may also help develop improved irrigation practices and technologies.

Funding assistance is available for irrigation efficiency improvements from a number of sources. These sources include the U. S. Agricultural Stabilization and Conservation Service, Farmers Home Administration, Soil Conservation Service, and the Montana Water Development Program administered by the Department of Natural Resources and Conservation (DNRC).

Given that one irrigator's water losses can be another irrigator's water supply, improvements in water use efficiency may adversely affect some water users. In light of this, the law provides potentially affected parties the right to object to certain changes in water use. Accordingly, the objective of increased water use efficiency is not to reduce the amount of water that is later reused. Rather, it is to decrease losses such as: (1) water used by weeds or other unwanted vegetation; (2) evaporation of standing water; (3) water that is not consumed but becomes inaccessible for reuse; or (4) water that becomes unusable because its quality has deteriorated.

The final difficulty stems from the fact that our water law is not clear on the question of who holds the right to salvaged water. In Montana, water rights are based on the amount of water historically put to beneficial use. If an irrigator decreases his use over time because of improved efficiencies, the legal status of the water no longer needed can be called into question. By one interpretation, this part of the water right would be considered abandoned and the water would go to the next junior user. Obviously, this would not encourage increased efficiency. Under a second interpretation, an irrigator who increases his efficiency retains the right to the salvaged water, so long as other water users would not be adversely affected by the change in water use. The irrigator may then have the option to expand

his irrigated acreage, sell, or otherwise benefit from the right to the salvaged water. Using this interpretation, an irrigator may be rewarded, rather than penalized, for becoming more efficient.

STATE WATER PLAN POLICY STATEMENT

Voluntary improvements in agricultural water use efficiency that expand water supplies for agriculture and other uses should be encouraged. Where improvements in water use would adversely affect other existing beneficial uses, such improvements should not be allowed.

ISSUES AND RECOMMENDATIONS

Issues

To encourage voluntary improvements in agricultural water use efficiency, three groups of issues must be successfully addressed.

1. Adequate information and educational opportunities must be readily available to irrigators, and research must be continued. How difficult is it for irrigators to obtain this information? Is it presented in a manner that is clear and persuasive? Are there adequate data for evaluating applications for water right changes in terms of adverse effects upon other water users? Is improving irrigation technologies and practices receiving adequate priority in the competition for agricultural research dollars?

2. Funding assistance may be necessary for those wishing to improve irrigation efficiency. Are existing programs capable of meeting future demands for funding? Are the kinds and levels of support adequate? Should the state Water Development Program give special consideration to irrigation efficiency-improving proposals? Are other sources of funding available, particularly for the rehabilitation and betterment of aging irrigation projects?

3. Laws clarifying who owns the right to salvaged water must be enacted to provide clear incentives for more efficient use. But when an irrigator increases efficiency, how will the amount of water salvaged be determined? Will it include water that otherwise would have been return flows? How will other water users be protected from adverse effects? Should restrictions be placed on how the saved water can be used?

Recommendations

In response to these issues, the following recommendations have been adopted:

1. The adequacy and effectiveness of existing information and research programs should be evaluated. Information should be provided to the state's irrigation districts and other organized irrigation associations on the availability of technical and financial assistance for improving irrigation efficiency. Further, these entities should be informed of their option under state law for the use of salvaged water.

2. Support for federal programs providing financial and other local level assistance to irrigators should be maintained. Special consideration should be given in the state Water Development Program for projects that would improve the efficiency of existing irrigation systems. Funds from the federal Pick-Sloan Missouri Basin Program should be allocated for use in the rehabilitation and betterment of irrigation projects.

3. The law should clearly provide that if an irrigator salvages water, he maintains the right to use the water. However, salvaged water must be defined to include only water that has not been available for reuse by other water users.

PLAN IMPLEMENTATION

Legislative Action

To provide effective financial support, the legislature should adopt a resolution urging Congress to authorize and appropriate funds from the Pick-Sloan Missouri Basin Program for the rehabilitation of irrigation projects. Such funding can be justified as compensation for water development projects promised to Montana under the 1944 Flood Control Act, but never received.

Legislation also should be passed that clarifies the rights of water users to salvaged water. Such legislation should carefully define "salvaged water" to include only the saved water that otherwise would have become consumed or unusable for other existing appropriators. The use of salvaged water for a different purpose, in a different place, from a different point of diversion, or from a different source of storage would require a change in water right in accordance with Montana law.

Administrative Action

To improve education and research on irrigation efficiency, the DNRC, in cooperation with the Montana Cooperative Extension Service and the U.S. Soil Conservation Service, should evaluate the effectiveness of existing research and public education programs. A report should be prepared to the State Water Plan Advisory Council that sets forth recommendations for any improvements in these programs.

The state's irrigation districts and other organized agricultural water user groups should be informed of available technical and financial assistance for improving irrigation efficiency. They should also be informed of the opportunity to use salvaged water if the legislation recommended above is enacted.

To assure continued federal government support for improving agricultural water use efficiency, the DNRC should continue to monitor and support federal funding for programs or projects that improve agricultural water use. In addition, the Water Development Program should give special consideration to project proposals that improve the efficiency of existing irrigation projects. The Governor's Office and the DNRC should also pursue all administrative and intergovernmental channels available to obtain Pick-Sloan funding for irrigation project rehabilitation.

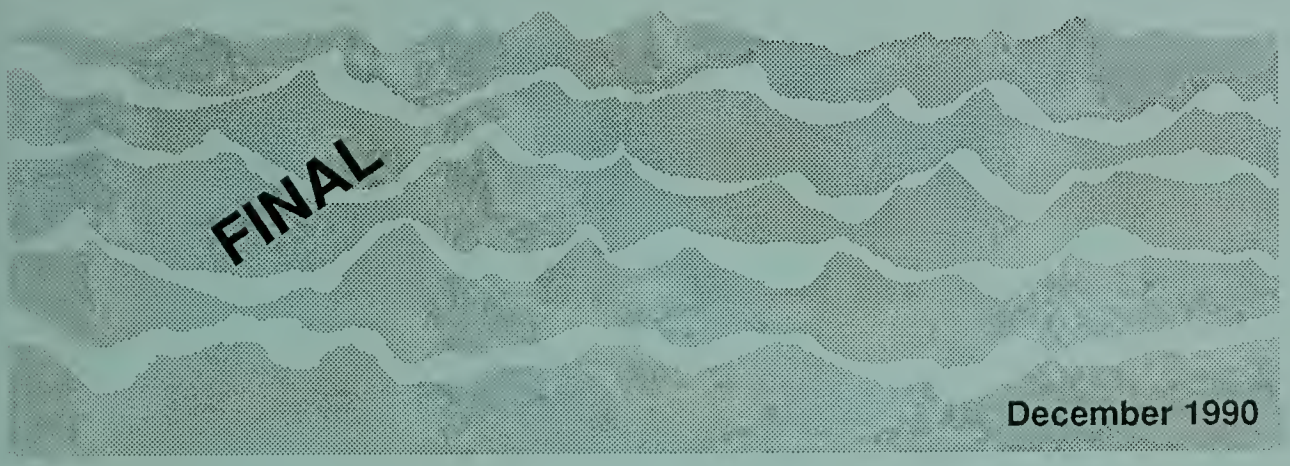
Financial Requirements and Funding Strategies

It is anticipated that the administrative actions can be accomplished with current levels of funding.

Time Schedule

Activity	Responsibility	Deadline
A. Development and Implementation Tasks		
1. Draft Legislation	DNRC	January 1989
2. Enact Legislation	Legislature	April 1989
3. Contact irrigation districts and water users' associations	DNRC	May 1989
4. Complete evaluation report on irrigation efficiency information and research	DNRC	September 1989
B. Ongoing Tasks		
1. Rank irrigation efficiency project proposals to the Water Development Program	DNRC	
2. Monitor and support federal funding, including Pick-Sloan Program Funding	DNRC/Governor's Office	

MONTANA WATER PLAN



December 1990

Section: Water Storage

Introduction 2
The Role of Storage in Water Management 2

Subsection 1: Water Storage Policy 4
Background 4
Policy Statement 4
Issues, Options, and Recommendations 4
Prioritizing New Projects 4
Prioritizing Rehabilitation Projects 4
Allocating State Funds 5
Plan Implementation 5
Legislative Action 5
Administrative Action 6
Financial Requirements and Funding Strategies 6

Subsection 2: Water Storage Financing 7
Background 7
Policy Statement 8
Issues, Options, and Recommendations 8
Information, Education, and Assistance 8
State Water Resource Funding Programs 8
Cost-sharing and Coordination 10
Payment by Beneficiaries 11
Economic Value of Alternative Uses 12
Plan Implementation 12
Legislative Action 12
Administrative Action 13
Financial Requirements and Funding Strategies 13

Subsection 3: Water Storage Regulations 14
Background 14
Policy Statement 14
Issues, Options, and Recommendations 14
Duplicative Laws and Regulations 14
Costs Related to Dam Safety 15
Inability of Private Entities to Obtain Water Reservations 15
Lack of Information About Water Storage Laws 16
Repairing Wilderness Area Dams 16
Plan Implementation 17
Legislative Action 17
Administrative Action 17
Financial Requirements and Funding Strategies 17

Bibliography 19

WATER RESOURCES DIVISION • DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

1520 EAST SIXTH AVENUE • HELENA, MONTANA 59620 - 2301 • (406) 444-6637

INTRODUCTION

In this plan section, the term "water storage projects" includes the construction of new storage projects and the rehabilitation and expansion of existing facilities. The term also encompasses all three types of storage. Onstream storage refers to facilities that are located on a stream or river and impound only the natural flow of that stream or river. Onstream storage may be located on either mainstem rivers or tributary streams. Offstream storage refers to facilities where the primary water supply is diverted from another water course or storage facility. Finally, nonstructural storage refers to any nonstructural or management activity that affects the timing and flow of water in a natural water course (e.g., groundwater recharge, wetlands enhancement, and watershed management).

Water storage projects provide a variety of benefits to the state of Montana. Among them, reservoirs regulate stream flows for flood control; store water for irrigation, municipal, industrial, and stock water comsumption; provide opportunities for flatwater recreation and improved fisheries; and supply water for hydropower generation. Storage facilities, however, can also adversely impact recreation and aquatic and riparian habitat associated with free flowing rivers and alter aesthetic views.

The first storage projects in Montana were built to supply water for mining operations. The homesteaders who followed relied upon small irrigation projects for agricultural development in Montana's semi-arid climate. As the state's population grew, so did the size, number, and variety of reasons for constructing water storage projects. By the 1980s, the Soil Conservation Service, the Bureau of Reclamation, the U.S. Army Corps of Engineers, and the Agriculture Stabilization and Conservation Service had combined with state and private entities to develop an estimated 11,000 reservoirs in Montana. Of these, 67 reservoirs store over 5,000 acre-feet of water, while two-thirds of the reservoirs are primarily for stockwater and hold less than 50 acre-feet.

The largest water storage projects (Fort Peck, Canyon Ferry, Hungry Horse, Yellowtail, Libby, and Tiber dams) were built by the federal government. These storage facilities are used for multiple purposes, including irrigation, flood control, hydropower production, and by recreationists who take advantage of the opportunity to swim, boat, fish, and water ski. The state owns several storage projects that were constructed in the 1930s and 1940s with financial assistance from the federal Public Works Administration. Other large dams are single-purpose hydropower facilities owned by private utilities such as the Montana Power Company. A few reservoirs larger than 5,000 acre-feet were built by private groups for irrigation purposes.

It is clear that water storage has and will continue to solve many water resource problems in Montana. However, its applicability is limited by several factors, including the availability of water, technical feasibility, environmental impacts, and funding.

The planning, construction, operation, maintenance, and rehabilitation of water storage facilities is expensive. Water storage projects must often compete for scarce federal and state funds, and their priority must be determined in light of other water management activities.

THE ROLE OF STORAGE IN WATER MANAGEMENT

Montana's water management problems are diverse and vary according to site-specific conditions. No single water management tool (e.g., water storage, water use efficiency, water right transfers, or conservation) can effectively and efficiently solve all water management problems. The best water management tool for a particular problem should be selected through the following problem-solving process:

1. Define the problem. The water management problem must be adequately and appropriately defined by water users (including municipal, agricultural, recreational, industrial, commercial, and other appropriate users) and technical experts.
2. Identify all the options to solve the problem, including water storage. Potential water storage projects, both new and existing, could be identified: (1) by working with appropriate government agencies and water user groups to review, evaluate, and update existing lists of potential storage projects; and (2) during the process of developing basin-specific plans.
3. Determine whether water is physically and legally available. Existing water rights must not be adversely affected by the water management tool(s) being considered to solve a problem.
4. Select the option that best meets the following criteria:
   a. Technical feasibility—Does it solve the problem from a technical perspective?
   b. Financial feasibility—Do the sponsors have the ability to obtain financing and repay any capital investments as well as the associated operation, maintenance, and rehabilitation expenses?

c. Economic feasibility—Do the direct and indirect benefits, both quantifiable and nonquantifiable, exceed the direct and indirect costs, both quantifiable and nonquantifiable?

d. Political feasibility—Is it supported by water users, including municipal, agricultural, recreational, industrial, commercial and other affected water users?

e. Legal feasibility—Can all applicable federal, state, local, and other legal requirements be satisfied?

f. Environmental feasibility—Does it protect and seek to enhance social, cultural, and ecological values?

Through this problem-solving process, a water storage project could emerge as the best solution to a particular water resource problem. Where that happens, this plan section is designed to facilitate the development of the needed facilities.

This section of the state water plan is divided into three subsections. The first subsection describes how the state should set priorities among water storage projects, allocate state funds among those projects, and ensure that action is taken to complete water storage projects. The second subsection focuses on the financing of water storage projects, while the third subsection addresses the regulatory aspect of developing and rehabilitating water storage projects.

SUBSECTION 1: WATER STORAGE POLICY

BACKGROUND

State water storage policy is to some extent already defined by Montana law. Section 85-1-101(2), MCA declares that *"the public policy of the state is to promote the conservation, development, and beneficial use of the state's water resources to secure maximum economic and social prosperity for its citizens."* Section 85-1-101(4), MCA goes on to say that *"the development and utilization of water resources and efficient, economic distribution thereof are vital to the people in order to protect existing uses and to assure adequate future supplies for domestic, industrial, agricultural, and other beneficial uses."* Finally, Section 85-1-101(6), MCA notes that *"the public interest requires the construction, operation, and maintenance of a system of works for the conservation, development, storage, distribution, and utilization of water, which construction, operation, and maintenance is a single object and is in all respects for the welfare and benefit of the people of the state."*

Although these declarations of policy illustrate the importance of water development and storage to the state of Montana, they do not provide much guidance for selecting which water storage projects to pursue in light of limited state resources. Nor do they ensure that specific actions will be taken by state government to develop priority water storage projects, especially in light of other water management activities.

POLICY STATEMENT

Water storage (including the construction of new projects and the rehabilitation and expansion of existing projects) shall be considered equally with all other practical options in any search for solutions to water resource problems. When the water storage option is determined to be the water management tool that best solves the problem and promotes and enhances the general welfare of the people of Montana, then it should be actively pursued. The pursuit of water storage projects requires a strong and focused commitment by the state. Given the limited resources of the state, priorities must be established among water storage projects in order for the state to be able to make a commitment to the most important water storage projects.

ISSUES, OPTIONS, AND RECOMMENDATIONS

Issue 1 — Prioritizing New Projects

When new water storage projects are selected as the best way to resolve a particular water resource problem, the state faces the question of which projects to focus its limited resources upon. The following options present possible criteria for resolving that question. These criteria are not in any order of priority, recognizing that some may be more important than others on a site-specific basis.

Options

help Ed.

1. Solve the most severe problems.
2. Provide multiple uses and benefits.
3. Provide for public uses.
4. Show strong evidence of broad citizen support.
5. Have the ability to obtain non-state sources of funding.
6. Protect and seek to enhance social, ecological, cultural, and aesthetic values.
7. Improve local and state economic development.
8. Help resolve Indian and federal reserved water rights.
9. Support water conservation activities.
10. Promote the use of water reserved under Montana law.

Recommendation

The priority of new water storage projects should be established according to which projects best satisfy options 1 through 10, realizing that some of the criteria may not apply in some cases.

Issue 2—Prioritizing Rehabilitation Projects

Several existing water storage projects in Montana are seriously in need of rehabilitation. The rehabilitation of existing projects may also help solve a variety of other water management problems, because projects may be expanded

and improved during rehabilitation efforts. However, it may be difficult to rehabilitate all existing dams due to the cost of such activities.

The estimated cost for rehabilitating several existing water storage facilities in Montana ranges from under $200,000 to over $5 million per site. Rehabilitating the Tongue River Dam alone will cost between $25 million to over $125 million, depending on the amount of risk to life and property the state and its citizens are willing to assume. The total cost for rehabilitating approximately 35 state-owned high-hazard dams, including the Tongue River Dam, is expected to exceed $200 million.

In light of the need to rehabilitate existing water storage projects, and the cost of such efforts, the state needs to decide which facilities should be rehabilitated first. One factor affecting the effort to prioritize such projects is the Montana Dam Safety Act. This act defines a "high-hazard" dam as any dam or reservoir that, if it fails, would likely cause a loss of life. The classification of a dam as high-hazard, however, does not determine nor imply whether the dam is structurally safe. Thus, the safety of a particular dam, in addition to its classification as high hazard, must be considered in any scheme to prioritize the rehabilitation of existing water storage projects.

Options

1. **Identify the high-hazard projects most needing repair based on the criteria listed under The Role of Storage in Water Management, those listed in Issue 1, and the following criteria:**
   a. **Protect public safety**
   b. **Impacts of not repairing project**
2. Breach high-hazard dams that cannot be repaired with a positive benefit-to cost ratio.
3. Rehabilitate all unsafe high-hazard dams by the year 2000.

Recommendation

Option 1. The priority of rehabilitation projects should be established according to which projects best satisfy the criteria outlined in Option 1, realizing that some of the criteria may not apply in some cases.

Issue 3 — Allocating State Funds

As mentioned above, water storage projects must compete with other water management activities in terms of state and federal assistance. In addition, water storage projects must compete among each other for limited state and federal financial and technical resources. Although the state has a limited ability to determine how federal resources are allocated, it can set priorities for allocating state funds. The question is, given the amount of state funding available for water storage projects, how should these funds be allocated? A related question, how to increase the amount of state funding available for water storage projects, is addressed in the next subsection on financing water storage projects.

Options

1. Allocate the state funds available for water storage solely to rehabilitate existing water storage projects, particularly unsafe, high-hazard facilities.
2. Allocate the state funds available for water storage solely to plan and construct new water storage facilities.
3. Allocate a certain percentage of the state funds available for water storage for onstream, offstream, and nonstructural types of storage.
4. **Allocate the state funds available for water storage based on the following order of preference:**
   a. **Resolve threats to life and property posed by high-hazard facilities that are in an unsafe condition.**
   b. **Improve and/or expand existing water storage facilities.**
   c. **Plan and/or construct new water storage facilities, including onstream, offstream, and nonstructural.**

Recommendation

Option 4. This approach recognizes the importance of rehabilitating unsafe, high-hazard dams, but also allows for other water storage activities.

PLAN IMPLEMENTATION

Legislative Action

The legislature needs to enact legislation that explains the role of storage in water management, including the generic problem-solving process outlined above. The legislature also needs to enact legislation outlining the criteria for prioritizing new storage projects and rehabilitation projects. The legislation should specify that the Governor's Office, in cooperation with the legislature,

will have final authority for prioritizing all water storage projects.

The legislature also needs to enact legislation specifying that state funds available for water storage should be allocated according to the preferences described above.

Administrative Action

The Department of Natural Resources and Conservation needs to prepare a progress report on water storage activities and submit it to each general session of the legislature. The report should include, at a minimum: (1) the list of water storage project priorities as determined by the governor and the legislature; (2) an implementation strategy for each priority project that identifies the resources, government actions, and political support needed to accomplish the project; and (3) the status of the priority projects.

Financial Requirements and Funding Strategies

The implementation of this subsection does not require any additional funding beyond that needed for the water storage projects themselves.

Plan Implementation Summary

Activity	Responsibility	Deadline
General		
Enact legislation that explains (1) the role of water storage in water management; and (2) the generic water resources problem-solving process	Legislature	April, 1991
Develop a report on water storage activities each biennium	DNRC	Ongoing
Issue 1 - Prioritizing New Projects		
Enact legislation outlining the criteria for prioritizing new water storage projects	Legislature	April, 1991
Prioritize new storage projects	Governor and legislature	Ongoing
Issue 2 - Prioritizing Rehabilitation Projects		
Enact legislation outlining the criteria for prioritizing the rehabilitation of existing water storage projects	Legislature	April, 1991
Prioritize rehabilitation projects	Governor and legislature	Ongoing
Issue 3 - Allocating State Funds		
Enact legislation outlining the preferences for allocating state funds for water storage projects	Legislature	April, 1991

SUBSECTION 2: WATER STORAGE FINANCING

BACKGROUND

The cost of constructing, operating, maintaining, and rehabilitating water storage facilities varies tremendously depending on their size, location, and site-specific geological and hydrological conditions. In light of this variation, the next several paragraphs illustrate the range of costs, in 1988 dollars, for developing, maintaining, and rehabilitating water storage projects (see Table 1).

The construction costs of existing water storage projects in Montana (excluding small stockwater and fish ponds) ranges from approximately $50,000 (for Sturgis Dam) to $258 million (for Yellowtail Dam). The construction costs of the majority of existing water storage facilities falls in the range of approximately $1 million to $4.5 million. The cost per acre-foot (based on total storage capacity) ranges from about $45 (at Canyon Ferry) to $2,400 (at Pike Creek Dam).

The annual cost for operating and maintaining existing water storage facilities ranges from about one-half to one and one-half percent of the total cost of construction on an annual basis. Rehabilitating and replacing water storage facilities are also expensive. The estimated cost for rehabilitating existing water storage facilities in Montana was outlined in Subsection 1, Issue 2. While historically there have been inadequate funds available for operating and maintaining some water storage facilities, funds are generally unavailable to rehabilitate and replace nearly all water storage facilities.

Finally, the estimated cost of constructing reasonably large new water storage facilities in Montana ranges from nearly $10 million for the Johnson Creek site (with a firm annual yield of 5,000 acre-feet) to over $215 million for the Sunday Creek site (with a firm annual yield of 215,600 acre-feet). The annual cost per acre-foot of yield (based on firm annual yield) ranges from $38 at the Reichle Dam site (with a firm annual yield of 140,000 acre-feet) to $378 at the Buffalo Creek site (with a firm annual yield of 27,480 acre-feet).

The estimated cost of constructing several much smaller new water storage facilities (ranging in size from approximately 5,000 acre-feet to 25,000 acre-feet) falls in a range of $1 to $10 million. The annual cost per acre-foot for these smaller facilities falls into a range of $100 to $1,000, with most of them being around $500. The annual cost per acre-foot for a few water storage facilities, however, has been estimated at less than $100.

Historically, federal and state governments helped initiate the development of water storage facilities by providing the necessary up-front funds for project planning and construction. Beneficiaries of the completed water storage projects then repaid, in the form of user fees, some or all of the costs attributable to such benefits (i.e., agriculture has generally repaid 10 to 100 percent on specific projects, while hydropower has generally paid 100 percent). Although many water storage projects provide fish, wildlife, recreation, and other environmental benefits, as well as flood control and navigation benefits, these direct benefi-

Table 1. Costs of Water Storage Projects

Existing Projects

Construction	Cost/Acre-foot (total storage capacity)	Operation & Maintenance	Rehabilitation	Rehabilitation of 35 State-owned Projects*
$50,000 to $258 million	$45 to $2,400	one-half of 1% of construction	$200,000 to $125 million	$200 million

* This total includes $125 million for one project, the Tongue River Dam.

New Projects

Construction of Large Projects	Cost/Acre-foot of Large Projects (firm annual yield)	Construction of Smaller Projects	Cost/Acre-foot of Smaller Projects (firm annual yield)
$10 to $215 million	$38 to $378	$1 to $10 million	$100 to $1,000

ciaries have had to pay little of the cost of these benefits (e.g., existing recreational user fees generally do not help pay for the costs of water storage facilities). Rather, these benefits have been paid for largely by the general taxpayer.

Although the federal government's interest in financing water storage projects has recently waned, there are still several funding and technical assistance programs administered by federal agencies such as the Soil Conservation Service's watershed management program and the Bureau of Reclamation's technical assistance program. In addition, the state of Montana administers several programs for funding water management activities, including water storage projects.

POLICY STATEMENT

Financing water storage is an important aspect of water development in Montana. The State of Montana should focus resources on understanding, coordinating, and improving funding programs for water storage development, operation, maintenance, and rehabilitation. Although specific financing packages must be developed on a site-specific basis, all beneficiaries should be considered for a responsible role in repaying the cost of water storage projects. The financial costs of operating and maintaining water storage facilities should be assured prior to construction, and the costs of rehabilitation and replacement should also be considered.

ISSUES, OPTIONS, AND RECOMMENDATIONS

Issue 1 - Information, Education, and Assistance

Although there are a variety of federal, state, local, private, and other sources of funding for water storage projects, it is currently very difficult to find one person or organization that understands all of the programs. As a result, potential project sponsors are unaware of and do not understand the conditions under which financing is available in the various programs.

Options

1. **Document existing programs. Creating and updating a directory may facilitate the financing of water storage projects.**
2. Provide public information and education on the availability of programs for financing new and existing water storage projects, in addition to the costs and benefits of water storage projects. This campaign would specify what funds are available and under what conditions.
3. Create a committee of diverse interests to facilitate efforts to finance water storage projects. This committee could serve as a clearinghouse for (1) providing public information and education, (2) developing financial packages for funding water storage projects, and (3) coordinating permitting and regulatory issues related to water storage development. This committee might be coordinated and staffed by the Department of Natural Resources and Conservation (DNRC), the Montana Water Resources Association, the Environmental Quality Council, the Water Resources Research Center, or some other organization.
4. **Designate a person (in the Department of Natural Resources and Conservation, the Montana Water Resources Association, the Environmental Quality Council, or the Water Resources Research Center) as a "water storage development coordinator" to facilitate efforts to develop water storage projects. This person would serve in the same capacity as the committee described above.**

Recommendation

Options 1 and 4. These options are likely to have the greatest impact on financing water storage projects.

Issue 2 - State Water Resource Funding Programs

The Department of Natural Resources and Conservation administers several grant and loan programs for a variety of water management activities, including water storage. One is the Water Development Program (WDP). According to Montana law, *"the water development program is the key implementation portion of the state water plan and shall be administered to accomplish the objectives of the plan"* (Section 85-1-602, MCA). It goes on to say that *"The storage of water for existing and future beneficial uses shall be given the highest priority [for funding] unless a water development project or activity designed to accomplish another objective is demonstrated to be more beneficial to a greater number of people"* (Section 85-1-602, MCA).

A second program is the Renewable Resource Development (RRD) Program. This program provides grants for the development of all types of renewable resources, including water. A third program is the Reclamation and Development Grant (RDG) Program. This program is designed to fund projects that mitigate the impacts of mining or meet other "crucial state needs." It is conceivable that water storage could be considered part of a reclamation program under the "crucial state need" category, but most water storage projects probably fit better under the Water Development Program or the Renewable Resource Development Program. The principle source of funding for each of these programs are taxes on the extraction of non-renewable resources.

The majority of funds potentially available under these funding programs are not allocated to water storage projects for two primary reasons. First, the Montana Legislature has diverted a significant amount of the funds originally intended for these programs to other, ongoing state programs, primarily the administration of state agencies (see Table 2). Since 1984, over $41 million dollars was deposited in the accounts created for the WDP and RRD programs. However, only about $19 million was allocated as grants. The trend has been that more and more of the funds deposited in the accounts are being used for other programs, and, consequently, less are available for water projects.

Second, there has been a lack of applications for water storage projects, and, consequently, available funds are allocated to other types of water projects (see Table 3). Of the slightly more than $19 million that has actually been available for grants, a total of only about $400,000 has been used to fund water storage projects. Since the inception of the programs in 1984, a total of 32 applications have been received for loans and grants to fund water storage projects. Twenty-nine of these applications have been completely funded. Under the Water Development Program, six water storage projects have been granted about $350,000. By contrast, 70 other projects, including municipal and rural water and sewer systems, streambank stabilization, and groundwater studies, have received about $4 million.

Table 2. Allocation of Funds Authorized for the WDP, RRD, and RDG Programs

	FYs 1984-91	FYs 1990/91
Authorized	$41 million	$15.7 million
Allocated as Grants	$19 million	$4.6 million
Used to Fund State Agencies	$22 million	$8 million
Used to Fund Water Storage*	$405,000	$93,000

* These amounts are included in funds allocated as grants

Table 3. Allocation of *Grants* and *Loans* from 1984 to 1991

	Water Storage Projects	Other Projects	Total
Water Development Grant Program	$350,000 *(6 projects)*	$4 million *(77 projects)*	$4.4 million *(83 projects)*
Renewable Resource Development Grant Program	$55,000 *(2 projects)*	$3.7 million *(62 projects)*	$3.8 million *(64 projects)*
Water Development Public Loan Program	$312,000 *(3 projects)*	$22 million *(46 projects)*	$22.3 million *(49 projects)*
Water Development Private Loan Program	$175,000 *(1 project)*	$4.1 million *(69 projects)*	$4.3 million *(70 projects)*
Reclamation and Development Grant Program	0	$10.8 million	$10.8 million
Total	$892,000	$44.6 million	$45.6 million

Under the Renewable Resource Development Program, 49 projects have been funded at a total cost of over $1 million. At the same time, only two water storage projects have been funded under this program at a total cost of about $55,000.

Under the Water Development Public Loan Program (which is financed by the sale of bonds backed by the coal severance trust fund), three water storage projects have been funded at a total cost of about $312,000. By contrast, 46 other projects have been funded under this program at a total of over $22 million.

Under the Water Development Private Loan Program (which is financed in part by RRD funds and the sale of general obligation bonds), 70 loans have been approved for a total of $4.3 million, including one irrigation storage project at a cost of about $175,000. Approximately $5.5 million is available each biennium under the Reclamation and Development Grants Program, but to date no water storage projects have been funded.

The issue on financing in the previous section of this plan focused on how to allocate the funds available for water storage. The purpose of this issue is to explore opportunities for increasing the available amount of such funds.

Options

1. Continue public information and education on the availability of funds under these programs.
2. Encourage potential project sponsors to apply for funds.
3. Support legislative and administrative enforcement of the statutory priority for water storage projects under the Water Development Program.
4. **Create a new special revenue account (the "Water Storage Special Revenue Account") to be used exclusively for funding water storage projects as identified and prioritized in Subsection 1, Issue 3, Option 4. The new account would receive 25 percent of each of the Water Development Special Revenue Account and the Renewable Resource Development Account. The funds in the Water Storage Special Revenue Account would be expended as authorized under current water development accounts, including grants, loans, and to underwrite bonds.**
5. If the funds deposited in the new "Water Storage Special Revenue Account" are not used during a given biennium, the funds should be allocated to other state programs.
6. **If the funds deposited in the new "Water Storage Special Revenue Account" are not used during a given biennium, the funds should accumulate rather than be transferred to other programs.**
7. **Seek authorization for allocating a higher percentage of existing non-renewable resource funds (e.g., coal severance tax revenues) to the development of Montana's renewable resources, particularly water.**
8. Encourage state government to take a more active role in initiating water storage projects.
9. **Authorize the use of 25 percent of the funds over and above the statutory minimum balance of $100 million on the Resource Indemnity Trust (RIT) Fund for water storage projects.**
10. Delete the $100,000 cap on Water Development Program Grants for water storage projects, as currently outlined in DNRC administrative policy.

Recommendation

Options 4, 6, 7, and 9. These options are likely to have the greatest impact on financing water storage projects.

Issue 3 - Cost-sharing and Coordination

When federal funds for water storage development are available, state and local entities are usually required to provide matching funds. However, it is often very difficult for state and local entities to come up with their appropriate share of funds. In view of this situation, the options outlined below are designed to (1) improve the ability to satisfy the cost-sharing requirements; (2) generate funds for operating, maintaining, rehabilitating, and replacing existing storage facilities; and (3) generate funds for constructing projects without federal financial aid.

Options

1. Pursue water storage projects only if they have local and state support and a realistic ability to comply with federal cost-sharing requirements.
2. Creatively utilize all available state, local, and private sources of funding to satisfy federal cost-sharing requirements.
3. **Encourage Resource Conservation and Development areas (RC&Ds) to develop funding packages and create broad-based coalitions to support water storage development.**

4. Make use of existing authorities associated with public entities such as conservancy districts, irrigation districts, and water and sewer districts to tax and collect fees for purposes of funding water storage projects. If existing public authorities are not adequate for the proposed purposes, make the appropriate modification.

5. Establish, on a site-specific basis, special improvement districts, rural improvement districts, conservancy districts, multi-conservation district special project areas, or some combination thereof to help raise funds for water storage projects.

6. Identify potential sources of private sector funding and integrate these on a site-specific basis. These sources might include contributions from various water user groups, such as irrigators, industries, recreationists, conservation and preservation groups, and others.

7. Increase state taxes and designate the additional funds to water storage development.

8. Encourage the state or a coalition of private investors to purchase federally owned water storage projects and operate them to generate funds for operation, maintenance, and new storage projects.

Recommendation

Options 3, 4, and 6. These options are likely to have the greatest impact on financing water storage projects.

Issue 4 - Payment by Beneficiaries

If water storage projects are to be developed or rehabilitated in the future, a diversity of funding sources will be needed. In addition to using federal, state, and private funds, another possibility is to encourage or require all beneficiaries to play a responsible role in financing the projects. The funds generated from this approach could be used to help finance a portion of water storage projects, including planning, construction, operation, maintenance, rehabilitation, and replacement.

The funds raised under any one of the following options would not generally be relied on to repay the entire cost of a project.

Options

1. Continue having irrigation, hydropower, municipal, and industrial beneficiaries repay some of the project costs through user fees, and allow the sponsor together with the funding source to make site-specific recommendations on whether those fees will adequately cover the costs of the benefits.

2. Conduct a study on the feasibility of having recreational beneficiaries repay a portion of the project costs associated with recreational opportunities. Among the options that might be assessed are:

   a. A fee, on a site-specific basis, to individuals who take advantage of the recreational benefits associated with water storage projects funded with public resources. Like an entrance fee to a state or national park, the fee would be assessed each time a person participates in some recreational activity related to the water storage project. An annual user's pass would also be available for each site. The funds generated from the fee would be designated for water storage development that includes recreational or fish and wildlife benefits.

   b. A "water development" stamp. This stamp would be required of anyone purchasing a fishing, duck hunting, boat, or other water-related license. The funds generated from this stamp would be designated for water storage development that includes recreational or fish and wildlife benefits. Such funds would have to be controlled in a manner consistent with state-federal requirements outlined in Section 87-1-701-714, MCA.

   c. An increase in the Motorboat Fuels Tax to be used for water storage development that includes recreational or fish and wildlife benefits.

   d. A generic "land and water conservation" license for anyone using public lands or water. At least some of the money generated from these licenses would be designated for water storage development that includes recreational, fish and wildlife, and/or environmental benefits. Such funds would have to be controlled in a manner consistent with state-federal requirements outlined in Section 87-1-701-714, MCA.

   e. The Department of Fish, Wildlife and Parks providing appropriate funds on an individual project basis through agency funding mechanisms.

3. **Continue to use tax revenues to provide a portion of fish, wildlife, recreational, and other environmental benefits associated with water storage projects.**
4. Continue to use tax revenues to provide flood control and navigation benefits associated with water storage projects.
5. **Continue to use tax revenues to provide a portion of the irrigation, municipal, industrial, and hydropower benefits associated with water storage projects.**
6. **Charge individuals and groups that benefit from the flood control and navigation benefits of a new water storage project. Create one of the several resource districts possible under Montana law to collect fees and/or require beneficiaries to pay taxes.**
7. Require downstream states to financially compensate Montana for the impacts of upstream reservoirs that largely benefit downstream users.

Recommendations

Options 1, 2, 3, 5, and 6. These options are likely to have the greatest impact on financing water storage projets.

Issue 5 - Economic Value of Alternative Uses

The appropriate role of each beneficiary in financing water storage projects might be based on the economic value of the benefits received and the ability of the beneficiary to pay. The problem is that, while it is relatively easy to determine the economic value of hydropower, municipal, and agricultural uses of water, it is much more difficult to estimate the economic value of secondary benefits (e.g., local and state economic development) and other direct benefits (e.g., recreation; fish and wildlife protection; wetlands and riparian habitat preservation; augmentation of flows for water quality, instream flow protection, groundwater recharge, and late season irrigation; and downstream navigation).

Options

1. Conduct research designed to identify all the potential benefits associated with water storage projects, estimate the economic value of all these benefits on a per acre-foot basis, assess the validity of methods used to estimate such values, and generate data that can be meaningfully compared (e.g., estimate all the values in terms of acre-feet).
2. Conduct research designed to estimate the value of secondary economic benefits related to water storage development, such as rural and local economic development.

Recommendation

No recommendation. While this is an important issue, it is not a high priority. It could be integrated into the study outlined in Issue 4, Option 2.

PLAN IMPLEMENTATION

Legislative Action

The legislature needs to authorize one new staff position for a "water storage development coordinator" in the Department of Natural Resources and Conservation.

The legislature needs to create a "Water Storage Special Revenue Account" and amend Section 85-1-601 et seq., MCA to allocate 25 percent of the Water Development Special Revenue Account to the new account. Section 90-2-101 et seq., MCA, which deals with the Renewable Resource Development Account, needs to be similarly amended. The legislation should specify that the funds in this account will be used exclusively for water storage projects. In addition, the legislation should specify that, if these dedicated funds are not used during a given biennium, they should accumulate rather than being used to support other programs.

The legislature needs to reallocate more non-renewable resource funds (e.g., coal severance tax revenues) to the development of renewable natural resources, particularly water. The legislature also needs to adopt a provision in Section 85-1-604 and Section 15-38-202, MCA to authorize the use of 25 percent of the funds over and above the statutory minimum balance of $100 million on the revenue from the Resource Indemnity Trust for water storage projects.

Administrative Action

The Department of Natural Resources and Conservation needs to hire (or, in the event that the legislature does not authorize a new position, the DNRC would need to reallocate an existing position for) a water storage development

coordinator to document existing federal, state, local, private, and other sources of funding for water storage projects; facilitate efforts to develop water storage projects; identify potential sources of funding in the private sector and include these in funding packages for specific projects; help develop a biennial report on water storage activities, as outlined in Subsection 1; and perform other duties as assigned.

The Department of Fish, Wildlife and Parks, in cooperation with the Department of Natural Resources and Conservation, needs to study the feasibility for having recreational beneficiaries repay some of the project costs associated with recreational benefits.

Resource Conservation and Development Areas and existing districts need to develop funding packages and support water storage development. They also need to develop mechanisms to charge flood control and navigation beneficiaries.

Water storage development sponsors should continue to use tax revenues for a portion of irrigation, hydropower, municipal, industrial, fish, wildlife, recreational, and other environmental benefits related to water storage projects.

Financial Requirements and Funding Strategies

Sufficient funds will need to be authorized both legislatively and administratively to hire a water storage development coordinator and for the coordinator to carry out his or her responsibilities. Adequate funds will need to be authorized to conduct a study on the feasibility of recreational user fees.

Plan Implementation Summary

Activity	Responsibility	Deadline
Issue 1 - Information and Education		
Hire a water storage development coordinator	Legislature and DNRC	June, 1991
Document programs	Water storage development coordinator	January, 1992
Issue 2 - Water Development Programs		
Create a water storage special revenue account	Legislature	April, 1991
Reallocate more non-renewable resource funds to renewable resource development	Legislature	April, 1991
Authorize RIT funds for water storage	Legislature	April, 1991
Issue 3 - Cost-sharing and Coordination		
Develop funding packages and coalitions	RC&Ds and existing districts	Ongoing
Integrate private sources of funding	Water storage development coordinator	Ongoing
Study and make use of existing authorities to tax and collect fees for water storage projects	Water storage development coordinator	Ongoing
Issue 4 - Payment by Beneficiaries		
Assess the appropriateness of fees paid by irrigation, hydropower, municipal, and industrial beneficiaries	Water storage development coordinator	Ongoing
Conduct a study	DFWP and DNRC	June, 1992
Charge flood control and navigation beneficiaries	RC&Ds and Water Storage Districts	Ongoing
Use general tax revenues for a portion of irrigation, hydropower, municipal, and industrial, fish, wildlife, recreational, and other environmental benefits	Water storage development sponsors	Ongoing

SUBSECTION 3: WATER STORAGE REGULATIONS

BACKGROUND

The planning, construction, operation, maintenance, and rehabilitation of water storage facilities in Montana is regulated by a multitude of federal, state, and local laws and administrative rules as well as international, interstate, and tribal treaties and compacts. In those laws, rules, and agreements, various requirements are designed to protect public interests in water appropriation and use, health and safety, environmental conservation, and cultural site preservation.

Examples of regulations that protect the interests of Montana's citizens include the Montana Water Use Act, which provides for the granting of water rights for a wide diversity of beneficial water uses including water stored for irrigation, hydropower, and recreation. Other laws regulate water storage by requiring minimum streamflows to maintain water quality and by governing construction of storage facilities to protect public health and safety. Examples include the Federal Safe Drinking Water Act, the Federal Power Act, the Montana Dam Safety Act, and local flood plain ordinances. Laws such as the Federal Endangered Species Act, Wild and Scenic Rivers Act, and National Historic Preservation Act guard environmental and cultural values by prohibiting storage or requiring mitigation where storage may impact natural resources, important wildlife species, or historical sites.

The state also has obligations under international, interstate, and tribal treaties and compacts that may limit the availability of water for storage. For example, the 1909 Boundary Waters Treaty between the United States and Canada provides for the division of flows in the Milk and St. Mary rivers. The Yellowstone Compact is an interstate agreement allocating basin water between Montana, Wyoming, and North Dakota. Indian tribes have rights to use water under state and federal laws.

The laws, regulations, and agreements applicable to water storage are summarized in the water storage regulations background document which is available from the DNRC upon request. A preliminary review indicated that some requirements may unduly hinder water storage development in Montana. The identified issues are addressed in this water plan section.

POLICY STATEMENT

Water storage is one of several tools available for managing Montana's water resources. A substantial number of laws and regulations affect water storage activities and are necessary to protect vital public interests and environmental values. The state of Montana should act to ensure that laws and regulations are reasonable and properly administered to allow for the use of storage as a viable water management tool.

ISSUES, OPTIONS, AND RECOMMENDATIONS

Issue 1 - Duplicative Laws and Regulations

Some laws and regulations contain duplicative requirements, result in overlapping administrative authorities, and set forth conflicting definitions. For example, high-hazard dams in Montana located on certain national forest land are governed by similar requirements under the Montana Dam Safety Act, Federal Land Policy and Management Act, and federal Wilderness Act. In addition, definitions of such terms as "navigable" and "stream bed" differ between laws and may be inconsistent. As a result, water storage development and operation may be unnecessarily cumbersome and confusing.

Options

1. **Identify unnecessary duplications and inconsistencies and recommend corrective measures. This evaluation could address one or more of the following issues.**

   a. **Identify duplicative requirements, overlapping administrative jurisdictions, and inconsistent definitions of common terms.**

   b. **Identify federal laws whose administration could be assumed by the state to improve efficiency and enhance sensitivity to local problems and concerns.**

   c. **Identify overlapping state regulatory authority.**

2. Designate a lead agency to coordinate all water storage permitting.

3. Take no action. The existing requirements, authorities, and definitions are appropriate to manage the resource.

Recommendation

Option 1. The evaluation and corrective measures will streamline regulation of water storage development.

Issue 2 - Costs Related to Dam Safety

Structural repairs or construction of existing and proposed high-hazard dams may be prohibitively expensive. One factor affecting costs are dam safety regulations. The Montana Dam Safety Act establishes the degree of risk to life and property that is acceptable with respect to a high-hazard dam, defined as any dam or reservoir that, if it fails, would likely cause a loss of life. Classification as a high-hazard dam does not imply nor determine whether or not the dam is structurally sound. If risks to public safety are increased—for instance, accepting more than one lost life or allowing a lower minimum spillway capacity—the costs of rehabilitating existing dams and building new facilities would decrease. Conversely, increased safety raises costs. In general, the administrative rules implementing the Montana Dam Safety Act require high-hazard dams to satisfy federal standards. However, standards in the Montana Dam Safety Act for designing spillways are less stringent than federal standards.

The administrative rules implementing the Montana Dam Safety Act require that, by July 1, 1995, existing high-hazard dams, as identified by the Corps of Engineers in 1981, must obtain an operating permit from the Department of Natural Resources and Conservation verifying that the dams satisfy safety standards. To date, studies have been completed on only approximately 33 of 85 high-hazard reservoirs to determine the modifications needed to satisfy the standards. Costs of rehabilitating state-owned high-hazard dams is expected to exceed $200 million. The costs of engineering studies and rehabilitation construction may be prohibitively expensive, thereby causing a delay or an inability to meet dam safety standards.

Options

1. Revise the Montana Dam Safety Act to increase the acceptable degree of risk to public safety and to reallocate responsibility for that risk between the public, government, and dam owners.
2. Repeal the Montana Dam Safety Act and defer all dam safety activities to the federal government.
3. **Evaluate the Montana Dam Safety Act and implementing regulations to:**
   a. **Determine the acceptable degree of risk to public safety and appropriate allocation of responsibility for that risk between the public, government, and dam owners.**
   b. **Determine whether the definition of a high-hazard dam should be modified.**
   c. **Determine whether the high-hazard classification should be expanded into a risk scale that allows structural design requirements to reflect probable risk to life and property.**
   d. **Determine whether the Department of Natural Resources and Conservation should be given greater discretion to substitute alternative means of addressing risks, such as early warning systems, for structural design requirements.**
4. Take no action. The current provisions of the Montana Dam Safety Act appropriately address dam safety concerns.

Recommendation

Option 3. Dam safety is an important public policy issue, and acceptable risks to public safety must be determined. In recommending Option 3, the State Water Plan Advisory Council acknowledges that the DNRC should assess alternative means of addressing risks, such as requiring early warning systems and balancing risks with consequential costs, and initiate rulemaking as appropriate.

Issue 3 - Inability of Private Entities to Obtain Water Reservations

Under the Montana Water Use Act, only public entities may apply to reserve water for existing and future beneficial uses, including those involving the storage of water. Private entities are prohibited from directly obtaining water reservations. Another way to secure water for future uses is to extend the time limit for developing water rights. Excluding private entities from acquiring water reservations may preclude some private development of water storage having public benefits. In addition, while the Montana Water Use Act allows water reservations for multi-purpose uses, there may be perceptions that water reservations are for single-purpose uses only.

Options

1. Revise the Montana Water Use Act to allow private entities to obtain water reservations.
2. **Revise the Montana Water Use Act to extend the 10-year limit on developing water use permits associated with water storage development.**
3. **Provide public education to encourage water reservations for multipurpose uses.**

4. Designate or create a public body to advance water reservation applications for private entities.
5. **Evaluate the Montana Water Use Act and the desirability of:**
   a. **Allowing private entities to obtain water reservations.**
   b. **Designating or creating a public body to advance water reservation applications for private entities.**
6. Take no action. The Montana Water Use Act appropriately guides beneficial water uses.

Recommendation

Options 2, 3, and 5. By extending the time limit for developing water rights associated with water storage, private development of storage projects will be facilitated. The policy restricting water reservations to public entities should be re-evaluated to determine whether the public use preference should stand.

Issue 4 - Lack of Information about Water Storage Laws

No comprehensive source of information exists on the laws and regulations affecting the development and operation of water storage projects. Consequently, potential project developers may be unaware of the legal requirements that must be met as well as the resources available for assistance. Development of water storage projects may be facilitated by easy access to this information.

Options

1. **Prepare, distribute, and regularly update (1) a directory of laws and regulations applicable to water storage, and (2) a booklet describing the major requirements and identifying administrative agencies; both suitable for use by laypersons.**
2. **Develop and administer a targeted program of education to promote awareness of legal requirements and sources of information applicable to the development and operation of water storage projects.**
3. **Designate a person to serve as an information coordinator for permitting and regulatory issues related to water storage development.**

Recommendation

All options. These activities would make information accessible and assist in the proper development of water storage facilities.

Issue 5 - Repairing Wilderness Area Dams

Rules and regulations pursuant to the Wilderness Act may constrain the maintenance or rehabilitation of dams in wilderness areas. The use of mechanized equipment in designated wilderness areas for maintenance or rehabilitation is prohibited, except where such use was practiced prior to wilderness designation or is authorized by the Chief of the Forest Service under specifically approved guidelines. There are 16 dams in Montana's wilderness areas that potentially threaten public safety, and others may exist in future wilderness designations.

Potential problems related to dams located in wilderness areas include (1) regulations governing wilderness areas may hinder dam maintenance, (2) rule implementation may impede dam maintenance, (3) dam owners may not understand the regulations affecting the use of mechanized equipment to maintain dams, and (4) dam owners, for any number of reasons, may not be willing or able to comply with wilderness area regulations. Any one or combination of these problems has, in some cases, led to dams deteriorating to the point where they may threaten public safety.

Options

1. Develop an informational program describing the application procedure for the use of mechanized equipment and other rules applicable to dam repair in wilderness areas.
2. Develop a training program for state and federal administrators to promote better implementation of regulations governing wilderness areas.
3. Develop more detailed guidance in the wilderness regulations promoting public safety through dam maintenance procedures.
4. **Develop a public process, which may include the U.S. Forest Service, Bureau of Land Management, Department of Natural Resources and Conservation, dam owners, conservationists, consultant firms, and other interested persons, to identify problems and develop appropriate solutions.**

Recommendation

Option 4. Since the nature and scope of the problem is unclear, further examination by affected parties is necessary.

PLAN IMPLEMENTATION

Legislative Action

The Water Policy Committee needs to reevaluate the acceptable degree of risk to public safety under the Montana Dam Safety Act. The Water Policy Committee also needs to consider the public policy of extending water reservations to private entities under the Montana Water Use Act.

The legislature needs to revise the Montana Water Use Act to extend the 10-year limit on developing water use permits associated with water storage development.

Administrative Action

The Department of Natural Resources and Conservation needs to evaluate federal, state, and local laws and regulations applicable to water storage to identify duplicative requirements, overlapping administrative authorities, and conflicting definitions and make reports and recommendations to the State Water Plan Advisory Council, Board of Natural Resources and Conservation, Legislative Water Policy Committee, and legislature as appropriate.

The Department of Natural Resources and Conservation needs to draft administrative rule changes to implement decisions of the Legislative Water Policy Committee.

The Department of Natural Resources and Conservation and the Montana Water Resources Center need to develop and administer a targeted education program to: (1) encourage water reservations for multipurpose uses, and (2) promote awareness of legal requirements and sources of information applicable to the development and operation of water storage projects.

The Department of Natural Resources and Conservation needs to prepare, distribute, and regularly update (1) a listing of laws and regulations applicable to water storage, and (2) a booklet that describes the major requirements and identifies administrative agencies; both suitable for use by laypersons.

The Department of Natural Resources and Conservation needs to designate an individual to serve as an information coordinator for permitting and regulatory issues related to water storage development.

The Department of Natural Resources and Conservation needs to develop, in cooperation with appropriate federal and state agencies, a public process to identify problems associated with the maintenance of dams in wilderness areas and develop appropriate solutions.

Financial Requirements and Funding Strategies

The legislature needs to provide adequate funding for the Water Policy Committee to conduct a water storage regulation study. Approximately $5,000 is needed during the 1991-92 biennium for the Department of Natural Resources and Conservation to print and distribute the water storage regulation directory and booklet.

Plan Implementation Summary

Activity	Responsibility	Deadline
Issue 1 - Duplicative Laws and Regulations		
Water Storage Regulation Study	DNRC	November, 1992
Issue 2 - Costs Related to Dam Safety		
Water Storage Regulation Study	Legislative Water Policy Committee DNRC	November, 1992
Issue 3 - Inability of Private Entitles to Obtain Water Reservations		
Water Storage Regulation Study	Legislative Water Policy Committee	November, 1992
Public Education	DNRC and Montana Water Resources Center	January, 1992/ Ongoing
Issue 4 - Lack of Information about Water Storage Laws		
Designate a water storage coordinator	DNRC	June, 1991
Prepare and distribute water storage regulation directory and booklet	Water storage coordinator	January, 1992
Public education	Water storage coordinator	January, 1992/ Ongoing
Issue 5 - Inabillty to Repair Wilderness Area Dams		
Sponsor a public forum	Governor's Office DNRC U.S. Forest Service	December, 1990

BIBLIOGRAPHY

Callens, Judith. February 1990. "Water Storage Regulations: A Summary." Paper prepared for the Water Storage Regulations Steering Committee, State Water Plan. Helena, MT.

Ewer, David. November 17, 1989. "Financing Water Storage Projects with Bonds in Montana." Memorandum prepared for the Water Storage Financing Committee, State Water Plan. Helena, MT.

Frank, Michael D., B. R. Beattie, and C. R. Taylor. December 31, 1985. "Economics of Water-Marketing Options for Montana," in Montana Environmental Quality Council Annual Report, Ninth Edition on Montana's Water. Helena, MT.

Interstate Conference on Water Policy. January 6, 1987. *Survey of State Funding of Water Resources Development Projects: Fiscal Years 1985-1987.* Washington, D.C.

McKinney, Matthew J. November 27, 1989. "The Economic Value of Instream Flows." Paper prepared for the Water Storage Financing Committee, State Water Plan. Helena, MT.

Montana Department of Natural Resources and Conservation. January 1981. *Water Storage in the Big Hole: A Recommendation.* Helena, MT.

_____. January 1989. *Reclamation and Development Grants Program: Project Evaluations and Recommendations for 1990-1991 Biennium and Status Report for Previously Funded Projects.* Helena, MT.

_____. January 1989. *Renewable Resource and Water Development Programs: Project Evaluations and Recommendations for 1990-1991 Biennium and 1988-1989 Biennium Status Report.* Helena, MT.

_____. October 1989. *Water Storage in Montana: A Background Report.* Helena, MT.

_____. October 10, 1989. "Discussion Paper on Financing Water Storage Projects in Montana." Paper prepared for the Water Storage Financing Committee, State Water Plan. Helena, MT.

Montana Water Resources Board. June 1968. *Summary of Potential Projects in Montana.* (Inventory Series No. 9). Helena, MT.

U.S. Bureau of Reclamation. 1977. *Report on Potentials of Eastern Montana Basins.* Billings, MT.

_____. February 1984. *Offstream Storage, Yellowstone River, Montana Appraisal Report.* Billings, MT.

Western States Water Council. May 1984. *State/Federal Financing and Western Water Resource Development.* Salt Lake City, UT.